Smithsonian African Expedition Notes of Edmund Heller.

COPY April 21, 1909.

(14) 21: Arrived at Mombasa at 5 P.M. and dropped anchor at Kilindini. Rained very hard from 6 to 8 but went ashore to Mombasa Club dinner. The country about Mombasa looked very green. Baobabs in full leaf. 22: Left Mombasa on train at 3 P.M. and arrived at Samburu at 6 P.M. The green rolling hills were very beautiful. The branching palms and coco palms were seen along the R.R. for the first 7 miles where they grada
(15) ually divided and were confined to ravines. Acacias and candelabra euphorbias were seen for about 10 miles or as long as daylight lasted. The scalloped topped euphorbias were also seen after the first candelabras. Apparently there are two zones, one characterized by branching palms and small brush and the next by euphorbias and acacias. Rock in the cuts was horizontally bedded yellow sandstone. Most of the soil was the brick colored so common in Africa. 23: Daylight broke a few miles below Kibwezi. Here the country was a very thick jungle of thorn trees candelabra, scalloped euphorbias, baobabs and bushes. Open parks very few and of small extent. A few miles above Kibwezi a rugged range of
(16) hills composed of rounded borders and cliffs of yellowish (16) sandstone. Soil everywhere brick red. Rode on engine from Makindu to Simba. Saw kongoni, two herds of zebra, 4 ♀ waterbuck, steinbuck, one herd of 15 giraffe, nearly all females with half grown young. Large herd of Impalla. From Simba rode on top of car. Near Simba saw two giraffes on open hillside, two herds of wildebeest, one of 25 and the other of 12 animals. Saw several solitary ones also. Country open and dry and covered with short grass. Saw many francolins, guinea fowl, hornbills and one secretary bird. Saw a bunch of the yellow fever
(17) acacias above (17) Makindu and also some near Simba. The scattered thorn veldt stopped at Simba and open plains occured. Baobabs very abundant but leafless about Makindu. No baobabs above Simba. Thorn tree veldt begins a few miles below Sultan Hamud. On the upper edge of the Simba plain a forest of apple-like trees, Cambretum, which extends along the railroad for several miles and has no thorn trees mixed with it. The latter begins a few miles below ~~SIMBA~~ Sultan Hamud.

(17) Mr. Jackson saw a rhino near the two giraffes on the hillside near Simba.
(18) Red barked Acacias (18) a mile above Sultan Hamud. Arrived at Kapiti Plains at 1 P.M. Here our camp was established a few hundred yards from the station. The whole safari, 250 men, were lined up at the station to meet us. We got busy and unpacked half our outfit before dark. Sir Alfred Pease and Mr. Hill came in and stopped with us. We found the Athi Plains very dry with short grass a few inches high and the ground cracked open in many places. A few Thomsoni, Grants, Kongoni and wildebeest were seen above camp. (19) 24: Unpacked outfit during the morning. At 3 P.M. T.R., Sir Alfred Pease and myself went out toward the hills for a short hunt. Mr. Hill and K.R. went in a similar direction but not with us. T.R. stalked a ♂ Grants a few miles out and fired several shots without apparent effect. Then he turned his attention to a solitary bull Wildebeest. He was able to approach it about 300 yards and fired and then it started to run and stop occasionally. He fired several times, the last time at 500 yards he hit it distinctly. It was hit only in the belly three times but was not weakened any. Sir Alfred tried to run it down by starting a mile behind it but it played his horse out and finally ran away. Later K.R. ran it down and shot it. T.R. shot a good ♂ Tommy at 250 yards. T.R. stalked a herd of 15 Wilde-
(20) beest in a shallow nullah (20) Shot at them. He fired several times and hit a cow. The whole herd came down toward us where we were skinning the Tomy. Opposite us at 200 yards the cow lay down and several others came back and stood by her but our dog chased her up and she continued with the herd. Two young were seen in the herd, about 2 months old. As they ran when the shot wizzed past them they would often lower their heads and kick their heels up in the air like a bucking horse. This cow was finally shot and hastily skinned about dark. We returned to camp in the dark at 7.30. 25: T.R. and K.R. left at 9 A.M. with Sir Alfred Pease and Mr. Hill for Sir Alfred's ranch 15 miles away. Spent the morning on the Tomy and later T.R. sent in a ♂ kongoni which I skinned. He also sent in a ♂ G. Gazelle. In P.M. went up the railroad
(21) 6 miles to a section house where K.R. and Hill had left a ♂ Wildebeest last evening at dark. This I skinned and photographed and returned at 6 P.M. Several rain squales visited us and the whole day was cloudy.

(21) 26: Remained in camp all day. Was very busy skinning until noon and in P.M. sorted outfit. Hill came in from Sir Alfred's at 3 P.M. and reported T.R. shooting many specimens of antelope. Cloudy in the A.M. with a few showers in P.M. Grass is just beginning to get green. The plains a few days ago looked gray like those of California in the summer. The young Wildebeest shot by R.H. was very mangy on the withers and ears (22) so did not preserve it for mounting. (22) 27: Left camp at 8 A.M. with 16 porters for Sir Alfred's place, Kitanga, in the Kwa Hills, where I arrived at 12 noon. Saw a good many kongoni, some Tommies, few solitary ♂ granti, one herd of zebra and a single old Wildebeest. Jumped a rabbit on the way over. The country about Sir Alfred's is much greener than the R.R. at Kapiti. Found a zebra, kongoni and a Grant skin awaiting me and a kongoni head. No one was at the ranch when I arrived but the party came in at sundown. T.R. shot a G. granti and preserved the head. Kermit ran down a ♂ hyaena after a run of 10 miles. The animal lead him through rock several times and he lost distance each time by this ruse. 28: Went out with T.R. and A.M. at the base of the hill we saw (23) two kongoni, a cow and a year old calf. T.R. shot the cow at 200 yards. Soon after a mixed herd of kongoni and zebra of about 300 animals passed us. T.R. shot a large mare which we skinned and then I returned to camp while he went on hunting. Later I shot a ♂ G. granti and a ♂ steinbuck. Many Marabou and vultures appeared in about half an hour after the kongoniwas shot to feed on its carcas. K.R. returned late about dark. He shot a ♂ zebra on the way in and reported seeing many zebra. Sir A. shot a Steinbuck which he sent in. 29: Got away this A.M. about one hour after T.R. and the Pease family had left for Alsops farm. (24) Could not find the (24) party so went to Cunningham's camp about 4 miles away on the open plain. On the way saw only a steinbuck, a few granti and many kongoni. At the camp I found J.A.L. had shot a ad. ♂ Grimes Duiker and the Dr. had a young granti a few days old. Left the camp at noon and went to the hill where I met the Colonel and his party. He had shot two ♀ Chandler's Reedbuck so I returned to camp to skin them. The party went on down the hill for lion. Soon after I left them they beat out two cubs out of a bush and T.R. shot both of them. Later they

(24) beat out of another bush two males about 2 or 3 years old and T.R. got (25) these also. (25) This completed the bags and they returned at dark very happy. It was a red letter day with four lions, two Reedbuck, a duiker and a gazelle in camp. 30: Everyone except K.R. remained in camp as the skinners ability was about taxed to the limit for the day by the previous days bag. The day broke clear with Kilimanjaro distinctly visible, only a few clouds at its base to give it a very lofty imposing appearance. M. MacMillan and some of his friends came over for lunch.

May 1: Went out in the morning for a few hours with K.R. but we (26) saw only a few kongoni (26) on the hill. No steinbuck or impalla were visible about the hill. In P.M. went with T.R. and party to MacMillans hill Ranch. Saw only Kongoni on the way over and one old ♂ of which T.R. shot for meat and also weighed. The scattered trees and green grass gave the hills a very attractive appearance. Medlicket shot a ♀ and ♂ Steinbuck, both of which he sent in. The ♂ had very long horns, apparently one or two inches longer than the average. 2: Left early with T.R., K.R., Sir A. and Med. for Nami hill for a lion drive. We were joined on the plain by the two Hills, Percival, Cunningham's, Tarlton and Allsop. While the beaters drove the hill T.R., K.R., Hill (27) Med. and myself took a (27) position in the neck and waited for game. A large ♂ cheetah was the only desirable game and K.R. shot it at a few yards. A herd of 4 ♀ Chanler's Reedbuck and several Steinbuck were driven out. Later at the south end of the hill a cub lion was driven out and shot by T.R. On the way across the plain in the A.M. we struck a herd of 7 wild dogs. They were first seen at 150 yards and stood for a shor time. When they started to run everyone open fired but no dogs were hit. After the hill drive the party moved out on the plain and drove a few grassy ravines for lions. I joined them after skinning the game on the hill. Soon after I went there a lion was discovered, or (28) rather a bunch of three.(28) T.R. shot a ♂ and then the lioness which whirled about several times and then bolted toward us. The porters near bolted but one lay down in the grass and the lioness came close to him and hid in the grass. Later T.R. and party advanced and at about 20 yards the lioness could be seen and T.R. shot her in the head dead.

(28) Soon after while I was photographing the lioness another lion wad dis-
turbed by T.R. and bolted past me within 25 yards, but this one got
away. Three very young cheetahs were found by the porters in the brush.
We sent the lioness in to camp in the flesh. We returned at 8 P.M.
3: Remained at Potha until 2 P.M. skinning the lions and antelope shot
(29) yesterday. Found Loring had caught a series of Georhynchus and Tatera
and a few Crocidura. Trekked to Bondoni, about 3 hours away. On way
over T.R. shot a ♀ Warthog which had with her two young. He also shot
a ♂ G. granti near the camp for meat chiefly. Saw only a few granti and
kongoni on the way over. 4: Went with T.R., K.R., Sir A. Med. Hill
and Percival on a beat for lions near camp. We beat up a ravine in the
wooded hills but started only a duiker, two Steinbuck, and bunch of
Impalla and two roan. Later we beat down a ravine and out on the plains
for several miles. Flushed 5-6 duiker but no steinbucks. One porter
(30) killed a Dik-dik, the only one seen. Many (30) rabbits were seen and
killed by the beaters. T.R. shot a ♂ granti on the way in and also saw
a warthof, a ♂. Sir A. shot a ♀ duiker. 5: Remained in camp and packed
outfit until noon when we moved from Bondoni to Kilimakui. T.R. went
out in the A.M. for Impalla but failed to score. On the way over Kilim-
akui we saw a herd of at least 500 kongoni, but very few young were to
be seen in this giant herd. Only a few zebra and G. thomsoni were seen
but granti were not rare. On arriving at 4 P.M. at Kilimakui we were
met by Capt. Slatter and a large number of Wakamba in their red blankets
(31) who had (31) gathered for the occasion. The chief presented T.R. with
a fat tailed sheep. 6: Went out early with T.R. and Capt. Slatter for
Giraffe and remained out until 3 P.M. but without catching sight of any.
T.R. stalked a herd of 7 eland but the kongoni frightened them and
spoiled the stalk. After I returned he found the herd again and shot a
♀ which was running away. Later a Rhino charged the party at 30 yards
and T.R. killed it at 12 yards. This rhino charged by sight alone, it
not being possible for it to get the wind. On the way out in the morn-
ing we saw many kongoni, zebra, and granti. A flock of 6 ostriches
were seen on the hillside in thorn scrub. Most of the country is covered
(32) by a (32) scattered growth of thorn scrub which is heavily loaded with

(32) large black galls. Left Kilimabui at 8 P.M. with T.R., Capt Slatter
and Medlicott and 40 porters and marched out to the Rhino where we
arrived at 11 P.M. Night bright moonlight. Skinned the eland at once
and camped at the rhino. 7: We were not disturbed by any lions or
hyaenas during the night. At an early hour we took some photographs
of the rhino and then started skinning. Our operations were keenly
watched by about 40 natives clothed in red blankets. They are very fond
of meat and at this time were in a starving condition owing to the poor
(33) crops. As (33) many porters as could surround the carcas and skinned
the animal. Outside of these skinners were a series of hungry Wakamba
with large knives who broke in occasionally and cut off a chunk of
meat. The head man wad askaris were in a frenzy driving back with whips
these Wakamba. The ground about the carcass was ankle deep in blood and
stomach contents. About one and a half hours of this mob labor, removed
the skin and then the trunk was taken outside the tent which we had
erected over the skin to keep off the sun. At once the Wakamba got busy
(34) and cleaned the meat off to the last shred. (34) The intestines were
also eaten by these people. Returned to camp at 3 P.M. The rhino skin
was taken to camp by Capt. Slatters ox team. In the afternoon T.R. shot
a ♂ Chanler's Reedbuck. In the A.M. he hunted a ♂ and ♀ giraffe which
were visible from the rhino camp but without success. 8: Remained in
all day paring down the rhino. T.R. went out for the A.M. but scared no
game. He saw two male waterbuck and a lion. K.R. and Sir A. went out
to beat for lions but K.R. went in persuit of a lone roan and followed
(35) it several hours but without results. Later he shot a ♂ zebra. (35)
9: Remained in camp again today finishing off the rhino. T.R. and
Capt. Slatter went out for giraffe. T.R. shot two bulls, a 15 feet
high immature one and a 16 feet high adult. These were seen together
with another and T.R. shot the smaller thinking it was a female. They
returned a little before dark and reported these kills and I hurried
out with tents, skinners and porters. On the way out lost porters but
later rode toward them on seeing their lantern light. When near they
heard me coming through the brush and they bolted, thinking I was a
rhino approaching. When I called to them they returned laughing. Capt.

(35) Slatter and T.R. went out with us as guides and we all slept together in the tent on the ground. K.R., Sir A. and Medlicott spent the day chasing a large bull which K.R. shot finally near Machakos Road. 10: Spent the day skinning giraffe. Began on the large ♂ of T.R. and then (36) took the smaller ♂ and at 3 P.M. (36) rode over to K.R's ♂ 3 miles away and skinned the head, tail and fore feet. Although it lay out in the sun unprotected it was not slipping anywhere. Apparently the sun dries the skin and preserves it. This bull was larger than T.R's, being 17 ft. 2 inches. The old bull had heavier horns but no longer than the other and the posterior pair were scarcely better developed. The stomach contents of all of these was the branches, leaves and pods of the green acacias which occur here. While we were starting to skin the first one a herd of eleven approached us to within 500 yards and (37) stood watching our movements. They were all adults apparently. (37) 11: Remained with the two giraffes near Machakos station. Finished the heads and fleshing but did not pare any. Heard a lion roar several times during thernight at a considerable distance. Saw two side striped jackals near camp which I passed on the horse at 40 yards. Fired at another near camp in the evening and also at a Grime's duiker which I flushed near the bridge. In skinning the giraffe no glands were found about the head, body or between the hoofs. They apparently have less skin glands than any other Artiodactyle. On the sides of the belly near (38) the scrotum were two (38) small tits, evidently representing undeveloped mammae of the female. These were found on both the males skinned. Kilimanjaro loomed up majestically, the summit at sunset being clearly visible above the clouds and touched with rosate lines. 12: Remained in Machakos Road camp paring down the two giraffes. In the morning ten Wakamba came in from Capt. Slatter and carried over the large bull giraffe to the smaller one a mile distant on the open plains. Many zebra and kongoni about camp but no gazelles. Saw several very young (39) kongoni and one young zebra, Across the railroad about two miles away in the reserve I saw in the A.M. a heard of 25 Wildebeest. About sundown I went down to the dry bed of a creek and shot a ♀ Grimes Duiker. Sand grouse and the great bustard is quite common. 13: At midnight or very

(39) early in the A.M. we were awakened by the roaring of a lion close to camp. He came within 30 yards or less of the tent according to Masai who saw him. His roaring was often interrupted by a series of heavy grunting and after about 15 minutes of this serenade he departed. At (40) the time the men were all (40) asleep and no fires were burning. At noon Percival appeared with his ox team and we packed up the skins which had just been finished and left at 2 P.M. for Kilimakui where we arrived at dark. Before leaving the giraffe camp we saw a herd of 6-8 on the reserve side of the R.R. about 1-1/2 miles away. On the way over saw a large herd of Wildebeest where we struck the Kilimakui Road Station. Many young calves were seen in this herd. Also saw two warthogs at 1000 yds. distance and several steinbuck at various distances. 14: Left Capt. Slatter's at 8.30, stopped one hour at Bondoni water for noon (41) and arrived at Percivals at dark. Beat through the Bondoni donga with four men but secured nothing. Flushed two hyaenas and two duikers, the latter in the heavy reeds far down the donga. Shot two great bustards on the way to Bondoni. 15: Put in the day digging the hoof bones out of the giraffe and eland and packing up the skulls and skins. Before breakfast a porter reported seeing a lion near the water pool but when we arrived there he pointed to a Wildebeest bull as lion and afterwards asserted he had seen a real lion. No tracks of lions could (42) be seen near the donga however. Percival has (42) some rare skins in his house. He has one of an ardwolf which he obtained on his place. The dogs drove it into a hole and when at bay he bit Percival savagely on the hand. He now carries the scars of this bitting. he had a side of the lower jaw, the rest of the skull having been broken in killing the animal. It has two small conical molars only. He has also the skin of the large eared fox, O. delalandi. He has seen several of these about and does not consider them rare. The ard wold however is the only one he has heard of in the country. He has also two skins of serval (43) cats taken on his farm (43) 16: Left Patha with Percival and Ox wagon at 9 A.M. and arrived at Kapiti station at 5.30. On the way over I travelled the ridge of Wami Hill but saw only a few steinbuck and one Chanler's Reedbuck. Saw two large herds of Wildebeest, one of 40 near

(43) Potha and another of 20 near the south end of Wami hill. On arriving at Kapiti we found a train on the siding occupied by Lord Delamere. A party including newspaper correspondents who were using Masai in hunting lions with spears. Gathered some tree botany on Wami. 17: Left Kapiti at 3.30 A.M. and arrived in Nairobi at 6.30. The country (44)
(44) about Nairobi is much greener than the Kapiti Plains but the rainfall has been but very little greater. Sent the skins to the store and unpacked them and checked them up. 18: Put the skins in brine. 19: Left Nairobi at 6.30 A.M. and arrived at Juja farm at 11 A.M. I found on my arrival a ♀ Leopard, a ♀ Hippo and ♀ Rhino, 2 ♂ Impallas, a ♀ Waterbuck, a ♀ Warthog and a male house cat. At noon a two year old ♂ Waterbuck and later R.J.C. brought in a young ♂ kongoni. I way out to Juja saw many sebra, kongoni and Thomsoni gazelles and ostriches on
(45) Heatley's farm. 20: Left Juja at 10.30 for (45) Heatley's house with the whole safari. On the way over we saw a herd of 7 waterbuck. At noon we stopped at the double falls 30 feet high on Heatley's place and lunched. After lunch at 4 P.M. we continued on to camp. Near the fence we saw about 20 warthogs in bunches of 4 or 5. T.R. shot two small ones. Beat the bushes near the falls for a ♂ warthog but flushed only a Grimes duiker. 21: Started from camp at 5 A.M. for a buffalo hunt. We found the buffalo at the edge of a papyrus swamp about 3 miles away. About this swamp they have lived for about 5 years and have been under the strict protection of Mr. Heatley. The herd numbers about 60. On this morning the old ♂'s were found out of the herd on the camp side of
(46) the (46) swamp, while the main herd, in a solid mass were on the opposite side of the swamp. T.R., K.R., R.J.C., and Heatley stalked the four which were near the swamp. On being shot at they deliberately fled out on the plain where one of them dropped. Another fell in the edge of the swamp to which they returned after their first flight. The third died in the heavy papyrus well in the swamp. All were old bulls with horns ranging from 43 to 40 inches in spread. Heatley says calves are produced at all seasons and that no bellowing is ever heard from the herd. The first bull shot, which was one of the oldest, had a broken or fractured part near the tip which was badly decayed and filled with maggots. After T.R. had made the first shot everyone of the party

(46) poured lead into the wounded buffaloes. 22: Remained in camp all day
(47) working on the buffaloes. T.R. went out in the P.M. and shot two sebra two kongoni and a young ♂ G. thomsoni. K.R. shot a large ♀ warthog and a ♂ G. thomsoni. In the A.M. T.R. shot 8 Wyddet Finches and two larks. These finches are at this season courting, the males often being seen early in the A.M. jumping up and down in the grass in certain established courting places where small circle is free from grass. They jump up about 3 feet and then descend with drooping wings but no song is uttered.
(48) 23: I remained in camp. Doran and Dawson came out and stopped over night. An attempt was made early in the A.M. at daylight to find the buffalo herd and secure a cow but it remained in the swamp apparently. 24: Everyone left at 9 A.M. for the buffalo swamp to secure a cow. About noon R.J.C. returned with the news of the killing of a cow some three miles away on the edge of the swamp. Later T.R. shot a large ♂ Wildebeest and a ♂ Warthog. The stalk on the Buffaloes was made on 3 buffalo but after the first shot the whole herd of 60 appeared and came toward the hunters some distance and then turned away. Two calves
(49) which were with the cows first seen (49) bolted into the swamp but could not be found again. 25: K.R., and Heatley went out for Reedbuck and wild dogs but secured no game. Several bobos were seen but none were shot. The pack of 23 wild dogs that frequent the region could not be found. They bred on the farm some time ago and while the puppies were still young and in the burrows the pack could be seen each day in the neighborhood of the burrows. A few months ago Heatley trapped in his corn field an ard wolf, the skin of which was cut up into ox reins. This is the only one known to have been taken in the vicinity. T.R., K.R. and Heatley went to Kamite to spend the night and try for
(50) bushbuck and reedbuck. (50) 26: Broke camp at 9 A.M. The safari went to Kijabe and the Bwanas to Nairobi. Two lions were heard for an hour or more during the night roaring and grunting about a mile away on the opposite side of the swamp.

June 1: Went out at dusk and shot bats near the bridge. Secured one Scotophilus with olive back and yellow belly, and one Kervula. I saw many Scotophilus but only one Kervula. In the evening we caught a

(50) Rhinolophus in the house. 2: Went out for bats again with J.A.L. and the Dr. Shot 4 Scotophilus and saw many others. In the evening we caught a nycteris in the house. 3: Left Nairobi at 1.30 P.M. on a (51) special train for Kijabe. Day (51) partly cloudy so that no good view could be obtained near the summit. T.R. road on the cowcatcher with Dr. M. and R.J.C. to Escarpment but saw only a Hyaena. K.R., J.A.L. and myself rode the remained of the way but saw only a pair of Colobus sitting on the top of a tree 50 yards from the track. 4: Went Colobus hunting with J.A.L. above the mission. Secured two ad.♀ and one ad. ♂ and a ♀ Cercopithecus. Found the Colobus in some tree in a canon near the top of the ridge. Shooting did not frighten them much and we got the whole bunch of four, one of which stuck in the top of the tree. Walked about the forest for a few miles but saw no more Colobus. A (52) shot at a plantain eater disturbed some Cercopithecus which were hidden in the tree tops and J.A.L. shot a ♀ ad. The Colobus are said to be active only during the early morning and evening and to rest and sleep during midday on the tree tops. 5: Left Kijabe at 10 A.M. with J.A.L. and went out ahead of the safari and visited Mr. Twig. He took us to a bat cave near his place. The cave was half way up a brush hillside. The entrance was about three feet square with a short tunnel opening out in a chamber 10 feet square. About 25-30 bats were found all being Nycteris which were easily caught by hand. They made no attempt when shot were fired to leave by way of the entrance. 19 were secured. (53) Twig showed us four warthog skulls which he had shot (53) in the brush. They all have very good tusks for this country. The largest was about 14 inches, the next 12 inches and the others about 11 inches. He also He also pointed out the place on a bushy side hill were 3 Borgo had been seen recently but this may have been mistaken identity although Borgo have been shot near Escarpment Station a few miles away. Saw 3 Klipspringer on a rocky hillside near the cave. Rejoined the safari on the plain neat Mt. Suswa about sundown. Rode until midnight and then rested two hours. Saw a few large herds of zebra and some kongoni at sundown. The Kongoni are apparently B. cokei. 6: Travelled all night. Weather overcast with a full moon. Rested at the west end of Mt. Suswa from

(54) 6 A.M. until noon. Saw a few G. thomsoni near this stop. After leaving the brushy area near the base of Kedong Escarpment the plain was open and grass covered but dry. Along the creek-bed a few thorn trees grew and these were the common yellow-barked ones. North of Suswa the plain was much dryer and denuded of grass but at the west end of the country became a rolling prairie, grass covered with scattered gall acacia bushes in places, especially numerous on the rolling hills. Reached the base of the main escarpment at sundown and camped for a few hours. K, T, R.J.C. and Tarlton went out for track but saw none. Klippspringer tracks and sign were plentiful on the rocky hill near camp but none were seen. The wagon boys saw a pair of lion near the (55) top of the hill but (55) Tarlton could not find them. The journey over from our noon stop to the Mau was through grass and Acacia covered country. The only game seen by us was a steinbuck. Tarlton saw a herd of 7 giraffe. In the road the tracks of a lion were seen. The country is well covered by long dry grass but there is no water except for a few weeks after heavy rains. Game is apparently lacking only because of the want of water. Travelled all night and reached the NjoroNyiro River at 7 A.M. on the - 7: Camped just across the river among some scattered bushes. Tarlton went out for buck, but saw none. Heard a lion roaring at dusk a few miles away. 8: Set some traps along the creek in the A.M. In the P.M. caught a Lophuromys, Arvicanthus masaicus (56) and an Otomys. Saw a few bushbuck tracks along the marshy border of the creek. Vegetation heavy along the creek, chiefly junipers trees and vines. Everyone went out for buck but no one was successful. RJC. saw duiker. Tarlton one duiker and the others drew blanks. Altitude about 6300 feet. 9: Picked up traps early. Caught one Rusty tree rat, one Peromyscus mouse, one Lophuromys, one Graphiurus, one Crocidura, and one Rock mouse. J.A.L. caught 4 large Tachyoryctes, one of which was an albino, also one Mus minimus which was more rusty than the form from the Athi Plains. Broke camp at 9 A.M. Otomys runways were abundant, along the creek but they were too shy to catch. Went bat hunting along the creek at dusk but saw nothing which is rather surprising in such (57) heavy (57) vegetation. On the way over to the Ngauri Narok River saw

(57) some Hartebeest and Impalla but shot nothing. Most of the way was through the giant sage brush with occasional open glades of a few acres in area. The camp at the Ngauri Narok was a large open meadow. The river is open with occasional large yem trees with a few yellow-barked acacias. Set out some traps above camp in grass. 10: Left the Ngauri Narok at 9 A.M. Caught an Otomys, a Lohpuromys and J.A.L. caught several Mus peromyscus and Lohpuromys. The country between this camp and the Guaso Nyiro is like that just passed through, i.e., giant sage brush and open glades, but the glades were much larger near the Guaso Nyiro. On the way over K.R. shot a ♂ topi which was found with a ♀ on one of the (58) glades. T.R. shot a ♂ Wildebeest near the river. (58) Many others were seen, also Thomsoni gazelle. Several colonies of banded mungos were seen on the open plains. The doctor shot one by waiting near a colony until one came out of its burrow. He saw about a dozen in this colony. Arrived at the river at 2 P.M. and made camp very near Uncle Tom Agatets Bama. Near the river a tall tree like aloe was found common which grew to 8 to 10 feet high. 11: T.R. went out alone at 9 A.M. and shot two bull eland about 2 miles from camp. The two were found together and were the only ones seen. The larger was an old ♂ but retained the stripes, the other was an adult but nat mature and had the prominent stripes and reddish color of a cow. The stomachs of these contained mostly grass (59) and the leaves of a shrub which (59) is abundant out on the grass veldt and is much eaten by cattle. Besides these several large pieces of aloe leaves were found in the stomach. T.R. also shot a fine ♀ topi later in the P.M. The first animal shot as he left camp was a ♂ G. thomsoni. K.R. shot a ♂ and ♀ G. g robertsi but went out primarily for lions. No evidence of lions was found. Day cloudy and cool. J.A.L. caught nothing in a large series of small traps set near camp in runways in the grass. 12: Remained in camp skining the eland T.R. shot. He also shot two ♂ zebra near camp and later sent in a ♀ Topi. K.R. and Tarlton went out early for lions. K.R. shot a very large ♂ lion and a ♂ and ♀ cheetah. They saw a leopard, several rhino and a herd of giraffe. J.A.L. caught several Tatera which were lighter than the Athi ones, also (60) a small species of this genius and some large Mus. (60) 13: T.R. sent

(60) in two Impalla and a robertsi. Dr. M. shot a young bushbuck. A Masai came in in the morning with a calf Eland he had captured a few days ago which the doctor purchased. Spent early morning photographing the ♂ lion. J.A.L. caught two elephantulus and some large mus and many Arvicanthus nairobi. 14: T.R. and Tarlton went out to the westward about 12 miles and returned late at about 10 P.M. He shot a ♂ hyaena and a ♂ Warthog with 7 inch tusks and a ♀ lion which was apparently a very old one with both lower canines broken down to stubs and some of the molars and incisors worn away. She had, however, still spots on her sides. (61) Two embryos were found in her. (61) She was badly hit, the first shot breaking her back so that she could not charge. K.R. and R.J.C. went out for the whole day but saw no lions or cheetah. They saw a great deal of antelope and some Rhinos. J.A.L. shot several Megaderma and Dr. M. shot a young ♂ dik-dik. 15: Broke camp at noon and moved out to some water holes about 8 miles to the westward. J.A.L. caught several very large Tatera of a very light fulvous color. Also one Georhychus. Saw only a steinbuck on the way over to the springs. Went out at dusk for bats but shot none. Saw some very small ones which kept well in the thorn trees. 16: Went out in the morning with T.R., K.R. and Tarlton. Saw a small herd of Topi with some half grown young and several (62) lots of G. robertsi but none were secured. Later we (62) located ~~KHOHL~~ a herd of 7 giraffe. 2 adult ♀, two small young, two half grown young and an old bull. T.R. shot an old ♀ and her calf and a young ♀. This latter one was very dark, like an old ♂. The four survivors remained about all day and finally after we had skinned the lot they were still about a half mile way. I gave chase and rode in to within 30 yards and photographed them several times. As soon as I stopped chasing they stopped and seemed utterly devoid of fear. A ♂ and ♀ and young Rhino were seen close by by nearly all the party except me. 17: T.R., K.R. went out for buck about 11 A.M. and returned at dusk. T.R. had a ♂ topi and K.R. shot a ♂, ♀ and youngd topi. Day cloudy and cold. Worked on the giraffe skins all day. R.J.C. pared down the large one with his knife. The young one which is a ♂. though only a few weeks old has (63) heavy horns already (63) than its mother's which are, however, larger

(63) though more slender than his. Onneach side of the hoof at about the position of falsehoofs glands were found on the old♀ giraffe. 18: T.R., K.R., RJC. and Tarlton went out for rhino. T.R. shot a large rhino about 2 P.M., body 12 feet 6 inches long, front horn 25-1/2 inches. Went out and skinned it before dark. Onway out to the rhino which was due south six miles saw many wildebeest, hartebeest, tomies and some topies. 19: T.R. went out north of the camp to the hill. He shot a large ♂ robertsi gazelle with horns 25 inches and a ♀ G. thomsoni which had slender crooked horn 3 inches long. K.R. and L.J.T. went out south of the camp for eland. They drove a ♀ eland nearly into camp and there flushed two ♀ cheetah which they chased and K.R. shot (64).

(64) 20: T.R. and K.R. went out south of camp where they found a ♀ rhino and a calf which T.R. shot about noon. The ♀ when hit in the shoulder danced about in a circle first on her front legs and then on her hind ones. The calf when shot squealed very loudly for some time. The contents of of the stomach of the cow was chiefly the spiny leaves of a small spiny euphorbia, some twigs and a small proportion of grass. The contents of the calf stomach was the same as its mother. The ♀ had milk and the calf was evidently still nursing, although apparently about two years old. K.R. attempted to run down a spotted hyaena after a 4 mile chase. 21: A lion roared several times during the night and again about dawn.

(65) Everyone went out after him at daybreak but he could not be found, although somewhere close at hand. A pair of rhino, the male much larger than the ♀ with diverging horns passed within a half mile of camp ealy this A.M. I watched them for some time. When they got the camp scent they faced about and came up the wind a short way and then turned and walked hastily away through the scrub and were soon out of sight. The ♀ lead the way. Found a colony of about a dozen banded mungos on the prairie near camp. Set some traps and soon caught one. The whole colony deserted at this disturbance and I saw them go into another series of holes a half mile away. They do not remain long anywhere. The one caught

(66) made a very loud whistling scream when annoyed or frightened. (66) Flushed three steinbuck among the grass a few miles west of camp. 22: Remained in camp all day with R.J.C. paring down the rhino skins. T.R., K.R. and

(66) Tarlton went out about 10 A.M. and returned at dark with only an immature ♂ G. g. robertsi to their credit. They saw a few klippspringers, one kopje but could not get nearer than 300 yards. 23: Packed up the skins and skulls and sent them over to the Dr's camp at the Guaso Nyiro. Went over in the P.M. with R.J.C. to look after them. Saw only a steinbuck on the way over and back. T.R., K.R., and L.J.T. came back late, 8.30. T.R. shot a lioness at 8 yards in the brush, also a ♀ klippspringer with large horns. K.R. shot a ♂ thomsoni gazelle with 13-1/2 inch horns. One of the men killed a small puff-adder. 24: Left the Lime Springs at

(67) 11 A.M. and moved over to the (67) base of the hills at a muddy water hole. On the way over I stopped at the rocky quartz kopje and shot a series of the red headed, blue-bellied lizards. Saw a great deal of game chiefly Wildebeest, Grant Gazelle, kongoni and Thomsoni and topi. Saw a herd of a dozen banded mungos and ran them down into some burrows. Waited about for nearly an hour but they did not appear. Shot a ♂ steinbuck near camp. RJC. shot a very wide-horned abnormal robertsi head. K.R. shot a large ♀ leo on Doningo Rasha and an impalla. T.R. shot a ♂ G. thomsoni on the way over to the camp. Kanow caught a hedgehog on the way over. 25: T.R., K.R. and Tarlton went west of the new camp, Njoro Solali. T.R. shot a large ♂ lion which charged him at 100 yards. Tarl-

(68) ton failed to stop the charge and T.R. then (68) hit him center at 100 yards and crumpled him up on the spot. In size of skull this old ♂ is slightly smaller than the one K.R. shot. Skeletons of 2 kongoni and a head of a topi and several G. robertsi were sent in. I went up in the hills back of camp where I saw three klippspringers, 4 steinbuck, two dik-dik and a number of hyrax on the rocks. The rock formation is glassy quartz which weathers out reddish. The hills are chiefly a series of ridges capped by these quartz boulders, the intervening valleys being rockless and grassy. At the base of the hills many giant candelabra euphorbias are scattered about. The yellow-barked Acacias is the predominating tree along streams. Caught 4 Saccostomus in the old creek bed near camp in long grass and bushes. Secured several Macrocelides and large rusty Mus also. The small gall acacias bush is prevalent along

(69) the base of the hills. 26: K.R. went out to the hills and returned

(69) with two Chanler Reedbuck, two Klippspringer, one of which was a horned ♀, also a old male Impalla. Camp very windy continuing night and day with short intervals. 27: Broke camp at 9 A.M. and trekked out to a waterhole (Olarakeri) about 15 miles to the westward. About the hills yesterday I saw the low spiny leaved euphorbia two thorns at each hoint growing profusely. This was the plant which was found so abundant in the rhinos stomach. 28: Crowns of all G. thomsoni from Sotik is white and not fulvous like Athi Plains. Went out this morning with T.R. and Tarlton primarily for ring zebras which we failed to find. T.R. shot two topi near camp, a young ♂ and an old ♂. On the way out we flushed a 7 foot cobra which came toward us till within 15 yards and then turned, with raised head and fled when I shot it with the shot gun. Later T.R.
(70) shot a ♂ Gazella thomsoni which had one of its hind hoofs greatly enlarged. On the zebra hill he shot a ♂ warthog with tusks 10-1/4 inches long, also a ♂ impalla with 23 inch horns. We then rested at the spring on the hill and I returned to camp to prepare the skins. K.R. and PJ.C. went out west of camp where they saw 5 rhino. K.R. shot a cow with both horns large, 21-19 inches in length and 11 feet long. This is larger than the ♀ shot by T.R. and so it was prepared by R.J.C. K.R. saw a G. robertsi with only one horn, but this was unusually large, probably about 28 inches. 29: Everyone except me went out north of the camp in the region where K.R. shot his rhino. A ♀ rhino was shot by T.R. with horns identically
(71) the same shape as those taken the (71) day before. Three zebra were also shot for rugs. K.R. shot the single horned robertsi with had a horn 24 inches long. The stump of the other horn was a rounded knot 1 inch high. T.R. shot a young ♂ steinbuck. A greater bustard was also shot by T.R. from the body of the rhino soon after it fell. 30: Caught a ♀ black-backed jackal in the trap set near camp for hyaenas. K.R. went out with Tarlton west of camp where they saw 7 giraffe, several eland and one waterbuck. K.R. shot a large ♂ eland. T.R. shot a ♀ impalla and collected a very large spotted tortoise. In the morning a porter took K.R. and Tarlton and myself down to the waterhole where a cobra was lying below the bank at the edge of the water from which retreat he would not budge. I shot him in the middle with shot and then Tarlton pulled him up on the

(72) ground where we proceeded to photograph him. He would not fight, however, and only occasionally raised his head and erected his hood. He spit several times a distance af a few feet. Another porter took me to a thorn tree in the topmost branches of which lay coiled a small yellow and black snake. Shot this one which was about 3 feet long and upon examination found it had large fangs.

July 1: Remained in camp. Only K.R. and T. went out in the P.M. K.R. shot a female Impalla. Caught a fine ♀ stripped hyaena in a trap near camp. This animal showed no fight although we poked it about and photographed it several times. 2: Left camp about 8 A.M. on a lion drive at the three rocky kopjes 5 miles away with T.R., K.R., Tarlton and R.J.C. Morning windy and cold and partly cloudy. On the way over
(73) saw only a few herds of G. thomsoni, a few topi and one W ildebeest. Stopped a few minutes at a Masai craal near the zebra hill and took some photos from the hillside of the whole craal and also took some on the inside of it. Caught another stripped hyaena at the same spot. This one was an immature ♂. The jackals took the bait of most of the traps. Saw a rhino on the way over which we inspected at 400 yards and found it possessed a small horn, perhaps 18 inches. It was feeding amid grass on the plain. Beat the three kopjes without flushing any carnivores. The only game flushed was a klippspringer, a steinbuck and 5 ♀ chanler Reedbuck. A large puff adder was taken by the men. T.R. shot an im-
(74) mature ♂ dik-dik which was flushed near him. (74) 3: Left the camp at 8 A.M. for the salt marsh. During the night I caught one ♂ Black-backed jackal. I heard at least two striped hyaenas. On the way over to the salt marsh we saw the old rhino found yesterday still feeding about the same spot. K.R. took several photos of him at 150 yards. He stood facing the safari for some time while it passed on his lee side but did not charge. About 6 rhino birds were roosting on his back or flying about him. Saw one steinbuck on the way over. Most of the way was over a hard dry plain scantily covered with short dry grass. Saw many thomsoni and a few robertsi, and a few herds of wildebeest. Saw a bunch of 5 giraffes near camp. Shot a small banded mungos on the way over which I ran down on the plain. This one, failing to find a burrow, lay down flat in the

(74) short grass and allowed me to ride up to it, and manouver about and back
(75) away again far enough for a fair shot. Stopped at the dry bed of a creek for lunch. Here I saw in one spot the dried skins of 4 hedgehogs where some animal, presumably an owl had deposited them. After our arrival at the salt marsh I went out with K.R. for birds. Saw one ♀ duiker which I shot. This one has the median face stripe very black and long, extending to the tip of the head.tuft. K.R. saw two others. I also shot a Megaderma which we flushed from one of the thorn trees. The vegetation about the salt marsh is much like that about the Guaso Nyiro. Most of it is sage brush and tall aloes with yellow and flat-topped acacias along the dry creek beds. About the pools in the marsh masses of bull rushes grow. A white substance efferesces on the dry ground which is evidently
(76) a soda or epson salt. 4: (76) Went out for a short time in the A.M. Saw 3 steinbuck, one of which I shot. Went out primarily for duiker but saw none. Wildebeest and thomsoni were common. Shot a 7 foot cobra a short distance from camp. This one moved away slowly and finally raced away when I shot it. It would not show fight or expand its hood. E.R. shot a 11 foot ♀ rhino with the rear horn the larger, about 24 inches. He saw no giraffe or desirable game. K.R. and Tarlton went northeast to the Guaso Nyiro. They saw two bushbuck, two duiker, many impalla and a fair amount of the common game, but shot nothing. No waterbuck were seen. 5: Remained in camp. Caught nothing in the traps and heard no carnivors during the night. T.R., K.R. and Tarlton went north of camp but saw nothing unusual. T.R. shot a ♀ thomsoni and a ♀ warthog. Rained for
(77) about one hour from 5 to 6 P.M. This is the first rain we have had since reaching the Sotik. 6: Caught nothing in the traps. Left camp with K.R. on the safari for the Dr's camp at 9 A.M. Skirted the west edge of the sage brush area for a short way but saw no game. We then crossed the salt marsh donga and went over the next ridge to the Guaso Nyiro. Saw much game on the ridge. Three d ~~eland~~, 200 ~~zebra~~, 50 ~~hartebeest~~ and 50 ~~thomsoni~~ and 25 ~~wildebeest~~ were assembled together on this ridge. Saw only a dik-dik and a herd of impalla on the way down the river. Heard a rhino in the brush snorting like a large pig somewhat but could not seen him. Arrived in camp at 3 P.M. The wagon had made the 10 miles

(78) at 11.30 A.M. 7: Everyone remained in camp except K.R. who went out in the A.M. for game and returned at dark. He shot a young R. chanleri, a good large ♂ warthog and a ♀ gazelle robertsi. He chased the pig into a hole into which it backed as usual and shot it running past. 8: Left the Guaso Nyiro at 8 A.M. ahead of the safari with K.R. for the Ngauri Narok and waterbuck. We saw the usual lot of thomsoni, wildebeest and kongoni on the way over. The morning was very damp, a heavy drizzle prevailing until noon. Went down the Narok about 5 miles but saw no waterbuck or any recent tracks of any or any other game. On the way back saw a bunch of 7-9 whitish-grey Cercopithecus at the ford near camp. They all scattered through the yem trees so rapidly that I did not get
(79) a shot at any. Found a willow tree growing along.(79) 9: Remained behind the safari with K.R. to hunt the gray Cercopithecus along the river. They were heard calling in the trees near camp early in the morning but we could not find any. Ascended the Narok several miles but did not see any monkeys or antelope. Found two Ndoroba huts in the brush with small circular stokades of dead limbs about them and a small hole two feet in diameter in one side to crawl through. A heavy branch of a thorn tree was fixed to fit this gap. Vegetation very thick along the creek. Many scalloped euphorbias, yems and junipers seen. Found a compisitae with very heavy fleshy radical leaves like a leek which grew among the rocks. Arrived at the Njoro O Nyiro at dark about 5 hours after the Safari. T.R. ran a waterbuck on the way over but failed to get a shot at it. 10: Left the Njoro Nyiro at daylight with the whole safari. At the
(80) upper river or the river ravine we caught the ox wagons which were just starting. We turned off the road just beyond the river of the second large ravine and headed directly north for Naivasha through a heavy growth of the giant sage brush out of which we could not see. The country about the river of this second ravine is said to be a good locality for klippspringer but we did not have time to do any hunting there. The sage country is absolutely flat and dry for the first five miles where the edge of the plateau breaks off and a short descent is made to a mixed scrub gall thorn country with open grassy meadows of 20-40 acres, in extent. From the base of this declivity to the next drop which we

(80) reached at 1 P.M. the country was covered by tall grass. From the second descent a valley filled thickly with flat-topped acacias extended to the (81) edge of the plateau several miles (81) the Narok. The only buck I saw was a ♀ bushbuck which ran within 20 yards of me, and escaped. Went out with J. A. L. at dusk to shoot bats. Many very small bats flew about but they were so close and quick that we secured none. These are a very small vespertillio which were found at the G. Nyiro where several were secured. away. No sign of game was seen in this acacia belt nor were any tracks or trails discovered. The next few miles brought us to a fine grassy valley in which a populated Masai manyata was the most conspicuous object. We arrived here at 3 P.M. and took a side trip of 4 miles down the valley to the water and watered our horses. The safari went straight on. After passing through several tangled forests and some open meadows we came to the eastern edge of the Mau and descended the steep slopes on an old Masai (82) cattle trail of considerable (82) width and depth. Half way down we turned to the north and skirted the flank of the plateau. At dark we arrived at a dry stream bed where we were forced to make a hasty camp. The water very seldom fails in this creek but at this time none could be found anywhere in its bed. 11: The next morning at daybreak we were away again heading directly for Lake Naivasha and skirting the Mau slope. The way led through very long grass, shoulder high and through occasional ravines. At noon a small pool was found in one of these and here we stopped and gave all the porters water and time to cook their posho. At 2 P.M. we continued on our way and reached the Lake at Hockley's farm about 5 P.M. Here we camped for the night. On the way over considerable rhino dung and beds were seen also a single waterbuck by K.R. Very little (83) sign of game was seen anywhere. (83) On the small hills about the lake many of the fluted euphorbias with tall straight stemlike plans were seen. Near the lake margin large groves of the yellow-barked Acacia prevail, some of the trees reaching a height of 60 feet. The gray sage bush continued down to the lake or rather to the hills about the lake. The flat-topped acacia seemed to be limited to the slopes of the Mau down to 7500 feet and up to 9000 but only on the eastern slope. 12: Left Hockley's farm at 9 A.M. with the safari and trekked over to Attenbery's farm which

(83) is 5 miles southwest. The country near the lake is very dry and the soil is riddled with the burrows of the bamboo rat. No green grass was seen anywhere except at the watersedge skirting the large beds of papyrus. (84) Passed through several groves of large yellow-barked acacias. A yellow flowered bush compositae like the Guatanoto was common along our way. Saw no game or any evidence of any. 13: T.R., K.R. and R.J.C. went out in the lake for hippo with Attenberry's launch. K.R. shot a cow which sank in three feet of water and was soon recovered. T.R. shot a ♂ which sank and was not recovered. T.R. saw two others, one at 50 yards and th e other farther away. J.A.L. caught many of the small gerbills like those caught at the Guaso Nyiro, he also shot a ♀ steinbuck. Dr. M. shot a large ♂ Papio and a black Kerivoula bat. 14: Spent the morning skinning and skeletonizing the hippo shot by K.R. The beast was a ♀ immature without any apparent mammae and with no embryo, apparently a virgin. She was about the size of the one shot by T.R. at Jiya. The stomach (85) contained only grass (85). This grass is the kind found about the dry country and is not a swamp variety. Leeches were found abundantly in the hippos mouth. They are very common in the lake and the porters who waded about in the lake were covered with them. Shot a young ♂ Cercopithecus. T.R. and K.R. went out for hippo but returned without any certain results. They fired at two but it was so late, 4.30 P.M. that they did not have time to rise before dark as three hours is usually required. 15: T.R. shot a large ♀ hippo about 1 P.M. near the edge of the lake in water 3 inches deep in the papyrus growth. When hit she came forward with open mouth seeking cover in the waters of the lake but T.R. put in three shots as she came forward and she dropped stone dead a considerable distance from the boat. Caught two ♂ Genette cats in my traps near camp. One of these I found sitting up as high as the trap would allow (86) it (86) in one of the bushes to which the trap was fastened. J.A.L. caught a Lophuromys, a Mus arborius, a small Leggada like Mus and a tree mouse like Mus arborius. Saw one duiker this A.M. but could not get a shot at it. 16: Pulled the hippo out and skinned it in the A.M. The animal, though fully adult with well worn molars and large canines had very small rudimentary mammae and a ragina so small that copulation was

(86) impossible. The body was very fat. Stomach contents, fine grass and a few water lily stems. Caught a female white-tailed mungos and a ♂ Genette in my traps. K.R. and Tarlton went out for waterbuck but could find none. They saw only one small duiker like buck and a number of baboons. (87)

(87) Caught a large ♂ leopard in a No. 2 double spring trap. The brute was caught by a single toe of the right fore leg in one side of the trap. To the trap a light branch of a thorn tree was attached by 3 coils of No. 20 wire. The animal travelled over a flat with this drag and then through a few bushes into a thicket of vines beneath a grove of thorn trees. I followed it to this thicket but could not see it. At 10 feet it growled and I realized that a leopard had been caught. The animal did not charge or growl much but lay hidden in the thick foliage. I climbed one of the thorn trees and shot down about where I thought the leopard lay and finally succeeded in making it move. It never showed its whole body but whenever I got a glimpse of it I fired and after six shots it fell dead. The body was very fat and weighed 126 pounds. Why the

(88) animal remained attached to so small a trap I cannot understand. Its weight along could not be held in such a small trap. K.R. and R.J.C. drove some buck near camp but missed only a ♀ bushbuck which escaped. In the P.M. they went for hippo but saw none. T.R. was under the influence of a slight fever and remained in camp all day. 18: Caught a ♂ Genette. Went out about 9 A.M. with the two Addlebury's and Dr. M. and J.A.L. for the bat cave. Stopped at Chaplins house and took him along as guide. Found the caves about noon. They were in a nearly level brush covered plain. The entrance consisted of a large hole 20 yds. and 30 yds. with perpendicular sides. From this opening a large cave with 15 feet high ceiling extended each way. Found many large Rhinolophus only.

(89) Caught about (89) twenty. The rock formation was horizontally bedded volcanic salts or lime or some sort, below which was a layer of yellow earth. Near the cave we saw a herd of impalla at which the doctor shot but none were secured. Saw a few kongoni but they were very wild and could not be approached. G. thomsoni were quite common on the plain where I shot a large ♂. Saw several Granti in a herd but did not get close to any. Saw one steinbuck. On the way back shot a varigated

(89) jackal near Chaplins house. T.R. remained in camp with Dawson answering his correspondence by the latters assistance. 19: K.R. recovered two young baboons which he shot yesterday from a herd in some thorn trees. He saw several ♀ bushbuck and several waterbuck near Hoporofts farm.

(90) This morning I saw the broad trail of a hippo which had passed within 100 yards of camp during the night. Also saw the spoor of a large waterbuck. Went out in Addlebury's boat late in the P.M. to search for other sign about the lake shore. Skirted the three small rocky islands near Addlebury's landing but saw no trace of otter slides or excrement. The stomach of the jackal shot yesterday contained a large tachyoryctes. 20: Remained in camp. K.R. sent in late yesterday two porcupines, one old ♂ and a young ♂. He saw a party of three, two of which he shot. The bunch were coming through thick brush and when they saw him they bolted and he shot two before they got out of sight. Stomach contents whitish material like a tuber or root mixed with yellow seeds like those

(91) of the nightshade. K.R. also shot a young ♂ Defasso waterbuck from a herd of 7. T.R., R.J.C. went out early for hippo in the launch. 21: T.R. and R.J.C. returned at midnight with a large bull hippo and the head of a large ♀. T.R. shot three other ♀, two of which were towed in by the launch this evening. Skinned the large bull. This bull had a distinct bunch of whiskers which I believe is wanting in females. Stomach contents coarse water grass and fine grass but no lily leaves or stems. Length 14 feet. Early this A.M. shot a ♂ Cercopithecus pygerythrus johnstoni from a bunch of 7 on the top of a thorn tree near camp. Shot another young one near Addlebury's house. This is the same light gray monkey I

(92) saw (92) at the Ngauri Narok River in the Sotik. 22: Skinned the largest ♀ hippo which R.J.C. brought in. She was 12 feet 6 inches long and had a lower left canine deformed and turned out horizontally at the side of the mouth. This one not being subjected to any wear was larger than its correspondent of the other side as was also the opposing upper canine. T.R. and the safari left for Naivasha by the west side of the lake. Shot a ♂ dik-dik near camp at dusk. As soon as the ♂ fell another ran out, beside him and stood for awhile and then reluctantly ran into the brush. The dik-dik are usually paired, at least I have seen 3 lots of two.

(92) Gunbearer Kongoni brought in one of the large Rhinolophus which he had killed with a stick. I have seen some of these every evening flying
(93) a few feet above the ground among the thorn trees (93). They have the same habits of flight as the smaller Hyctoris. These are the same species as we found in the cave on Chaplin's farm. 23: Spent the day on the two large hippo skins. Saw the tracks of a leopard on the trails about camp. A bunch of zebra came about a little before sunrise but when they met the fence they stampeded back to the hills. Dissected the dik-dik stomach and found it contained chiefly green leaves and twigs and berries but no grass at all. Shot two Cercopithecus pygerythrus johnstoni near the hippo landing. 24: Caught nothing in the 4 large steel traps set near camp. Shot a ♂ and ♀ dik-dik which I jumped together. Saw another pair this
(94) evening. (94) This morning I started one which gave several sharp hissing whistles and then bounded away by high stiff-legged bounds. This is the first time I have heard them utter any note. Examined the stomachs of the two shot this morning and found only green twigs and leaves. After shooting the ♀ dik-dik this morning the ♂ who had bolted first stopped and waited for his mate and remained standing until I approached and shot him. I noticed the same reluctance to leave its dead mate on the part of the ♀ also on the shooting of the ♂ yesterday. Saw a Cercopithecus pygerythrus on the ground this morning near some thorn trees. I chased him through a grove at a hot pace but he would not climb and kept well ahead of me and finally gained the cover of thick brush. 25: Left
(95) the camp at 9 A.M. in Capt. Attenborough's boat. (95) A good southerly breeze accompanied us over and made the voyage cool. Shot a small tern on the way. Saw about two dozen others. Saw several flocks of pelicans and a number of small black cormorants. When I arrived at noon I found Loring and Dr. K. had shot several springbaas and two Otocyon with the headlight. We went out after dinner with J.A.L. and the Dr. with two acetelyne head lights to shine springbaas. Shot 8, 3 by Loring, 3 by the Dr. and two by myself. Saw about 16, most of which were in pairs or trios. Although the moon was shining brightly the eyes could be seen at 30 yards or more. 26: Slept at Naivasha and left the station at 3.30 in the A.M. for Nairobi where I arrived at 8.30 A.M.

(96) . August 7: Left Nairobi for Naivasha where I arrived at sundown. On the way saw no mammals until I arrived near the lake where I saw a few kongoni and G. thomsoni. Found J.A.L. and the Dr. with the usual lot of species from the lake. No new ones had been secured but all those I took several years ago were represented. In the evening the Dr. and Loring went out with the head light and shot three Otocyon and one white tailed mungos. 8: Left Naivasha at 1.30 and climbed the low escarpment near the town and then jodmadd about 10 miles to the base of the second escarpment where we camped. Saw only a few ground hornbills on the way. Country mostly juniper trees and gray sage brush. Heard at night the cry of the tree frog which is said by the Wandorobo to be the Dendrohyrax. At Naivasha Kermit saw on the papyrus of the lakes clusters of bats but
(97) none were secured. (97) 9: Ascended the escarpment and emerged on the Naivasha plains which are treeless, grassy and absolutely flat and extend about 15 miles to the base of the Aberdare and Hinagop Mts. Saw some kongoni, zebra and G. thomsoni. Several jackals were seen and also two serval cats at 100 yards but both escaped. One common duiker was seen. Saw several elephant tracks of a week or so in age along the road. 10: Ascended the pass leaving camp at 7 A.M. The day was cloudy but not misty. The bamboo belt was soon reached and through this we travelled until the summit was reached in about 3 hours. Saw no mammals or birds. A few elephant tracks, bushbuck and duiker tracks were seen in the mud of the
(98) road. The the bamboo (98) which was slender grew an oak-like tree 20-30 feet high, the branches of which were covered by gray spanish moss. Fro m From the summit the top of the range stretched away in large rolls partly forested or brush covered. The open places was covered by a dense growth of gray brush of a peculiar kind. With this grew patches of higher brush which looked exactly like our greasewood. A few giant Lobelias were seen also a fire red gladiolus and kinphofias. Most of the flowers were compositae, daisies, thistles, etc. The burrows and mounds of the bamboo rat were seen everywhere. Made camp at the eastern edge of the summit in tall grass near a large stream. Set out a lot of small traps. Caught two Surdisorex, two Otomys, one Lophuromys, one Arvicanthus pumilo and one
(99) small Crocidura. (99) The Podocarpus saw on the way here were bushes.

(99) Junipers were nowhere abundant. The Otomys taken are of two kinds. Three specimens with large white patches at base of ears, and one without these white ear patches. No description of O. irroratus mention ear patches. The small yellow bellied grass lizards found in the Mau were common in the grass. 11: Caught two more Surdisorex and a large black Crocidura in the swamp. Shot during the evening with a headlight a ♀ Cephalophus grimi. Saw also the eyes of a mungoo or some small animal. In the morning a thin film of ice was on the water in my basin. The day was very misty and rainy. Most of the way was through solid bamboo forest, the bamboo being larger and extending from the summit of the pass, 11,000 feet to (100) to about 7,000 feet. Saw nothing (100) in the bamboo except a spurfowl. Small birds were very scarce near the summit. Saw no juniper on the whole trip. At 9000 feet the oak-like tree began and lower down large Podocarpus trees were prevalent, also an olive. At about 7500 many trees Dracenas were seen together with a very large leaved Malvaceors trees 20-30 feet high. The deerfern Pterus and the shield fern Asplenium? were common in the bamboo. A beautiful large white balsam was common at 7000 feet where R.J.C. reported tree fern. We, however, found no tree ferns anywhere. A red balsam was abundant in the bamboo belt, in thick masses. In the Dracenas belt a white flowered inflorescens Rubus? appeared abundantly. Near the Kikuyu chambas saw a Genet cat in the road which sprang into thick bush at our approach. Near the upper edge of the (101) bamboo just below the summit I saw several tree (101) Senecios. No mounds of the bamboo rat were seen in the whole stretch of the bamboo forest which is surprising as they were everywhere on the other slope and all over the summit. Arrived in Nyeri at 2.30 in fairly good weather. Safari arrived at 5 P.M. and we made camp in front of the boma. 12: Mr. Brown gathered about 2000 Kikuyu warriors about the fort for T.R's inspection. They arrived about noon and danced for several hours during the afternoon. A few women were with them and these were mostly decorated with crowns of bangles and beads. Many of the Warriors had painted shields and colobus monkey head dress and knee tufts. A few dozen Masai warriors were also present but their dance was less elaborate. Brown told us that recently he saw a pair of what appear, from his description, to be greater

(102) koodoo on the summit of the Abdedares near the small stream which flows through the center. 13: K.R., T.R. left with 80 porters for the Sotik Guaso Nyiro to hunt buck for a few weeks. Day clear, at dawn Kenia loomed up unclouded and remained so until noon when a few clouds hid the snow. At sunset it again was visible as were also the Aberdare and Kinanozop Mts.all day. During the night several hyaenas were heard calling. 14: Left the Nyeri station at 9 A.M., weather clear with the peak of Kenia visible. Took the Fort Hall road going southeast along the Chania River which we forded at noon. Camped at 4 P.M. about 15 miles from Nyeri. The river below Nyeri has a considerable number of date palms scattered along its margin. These are about 20-40 feet high. Nearly all of the country is heavy grass and weeds without any forest. A giant (103) Pteris fern (103) was common along the road. On every side were the shambas of the Kikuyu's planted chiefly to corn and beans, a few sweet potatoes and sugar cane was also seen. No game or bird life seen. Everywhere the soil is the usual heavy bright red. The lower part of the river supports many groves of bananas. 15: Left our camp at 8 A.M., day clear with a few fleecy clouds. Travelled through chambas and rolling hill until noon when we turned off the main road and into the brush and forest country. Pitched camp about 3 P.M. in a little clearing in the forest covered with low grass. Before reaching this spot several clumps of tree ferns were seen along the sides of ravines. Most of the shambas we passed were planted to corn, bananas and taro with some little areas (104) of sweet potatoes. Saw but a single date palm. Along(104) the road at the edge of the forest I noticed many Rubus bushes in fruit and flower. This was the same kind as found at the lower edge of the forest on the Aberdares. Saw also some patches of the white balsam and many of the yellow flower pea bushes which are so widely distributed. No tracks of mammals seen. 16: Set out a few mouse traps near camp on the edge of the meadow where I caught two large dark Crocidura, two very dark brown Otomys, apparently jacksoni, three Lohpuromys and three Mus (Long, naked tailed rusty rat) also shot a Sumisciurus much like the Nairobi species but apparently smaller. Heard during the night the loud piercing cry of the tree hyrax. R.J.C. and the Ndorobo guides went out for elephant. They got a fresh

(104) trail but did not come up to the elephants after a ten hours walk. 17:
(105) Rained all day. Caught several Mus peromyscus in the woods, one dormouse and several Crocidura. Tried the head light on hyrax in the forest but found nothing. R.J.C. found many elephant spoor but saw no animals.
(107) 18: Left camp at 8 A.M. with 10 porters and provisions for three days. Day misty. Skirted the lower edge of the shambas keeping in the shamba country until noon when we entered the forest. Our general direction was northwest. Saw no buck tracks or evidence of game in the shambas. Soon after entering the forest we picked an elephant track which was quite fresh and which we followed. I followed at some distance with the ten porters and a few Ndorobo-Kikuyu guides. We finally lost T.R. track but kept on some elephant tracks and finally at 2 P.M. jumped apparently three from a dense patch of brush at about 30 yards. Soon after we found T.R. again and continued on the tracks of these three which had bolted. T.R. got fairly close to them at 3.30 when I heard them bold. A Ndorobo who climbed a tree said he could see two, apparently there were three,
(106) a ♂, ♀ and a young. Made camp(106) at 5 P.M. at the edge of a small swamp. In the grass nearby I saw the large droppings of the giant rat, Cricetomys and also the wide trails through the grass. Soon after turning in, about 9 P.M. a hyaena set up a tremendous roar like that of a lion or perhaps a moose. Tree hyrax heard everywhere in the trees. A good many flocks of parrots flew over to their roosting places, also a few crested ibis. Some very large trees were seen scattered through the forest. A tree with heavy buttressed trunk like the Ceiba of 10-15 feet diameter was seen. A commoner one had a fig-like --- on the trunk. This also grew to a large size and about 8-10 feet in diameter. Saw one or two heaps of Zanzibar antelope dunk. There is apparently very little life in the forest although there is much brush and grass with few large trees. Podocarpus are rather small and 1-1 1/2 feet in diameter and
(108) rather few. (108) A few small Dracenas were seen and thickets of black berry bushes but no bamboo, Acacias, Acanthus, Juniper like the Mau forest. 19: Went back and picked up the tail we left at 8 A.M. We followed the trail to a swamp where fresher spoor was found and this we followed. It led us up and along the summit of a ridge for a long way. Here the

(108) elephants were travelling and no dung was found along the trail. At noon we all met on the ridge and rested a shor time. T.R. and R.J.C. then went on without the safari and turned back along the base of the ridge. Hear they heard elephant feeding and breaking twigs and in about half an hour they came up to a large bull in thick brush. T.R. fired two shots at this fellow at 20 yards, hitting him first above the eye and knocking him down; when he got up he hit him again in the brain and he dropped dead. As he shot another large bull came forward through the thick brush
(109) immediately above him.(109) R.J.C. put two hots in this fellow in the shoulder and he turned and fled. Kayani trailed him later and found him about three miles away standing badly wounded. His party shouted at him but he paid no attention nor moved. Skinned the head out and the skin from the top side but could not roll over the carcass. Saw a herd of Colobus monkeys early in the A.M. 20: T.R. left for camp. We finally rolled the elephant and skinned out the underside and finished off the head and ears. Weather bright but cool. In the evening the Ndorobo sang loudly for some time. One of the men lead and composed as he went and the others joined in a rollicking chorus of which hyya-hyya was the chief component. Heard a hyaena during the night. Saw the tracks of one near the carcass. 21: The safari came in at breakfast time with the salt and tents. Salted the skins and pared down the two forefoot pieces and
(110) the head. The stomach contents consisted largely (110) of twigs and the leaves of bushes. No grass was found. During the afternoon herd of elephants in passing got the wind of camp and they remained near for 15 minutes screaming loudly and trumpeting. Two nights ago the elephants came close to the base camp at 10 O'clock when they were heard stampeding. 22: Early in the morning before daylight elephants were heard trumpeting by some of the safari. Finished paring down all the pieces of elephant except a few hind feet on one of the hind quarters. A pair of white necked ravens visited us in the morning and flew down to the skull and picked out the meat on it. Last evening heard several hyaenas about the elephant carcass and went out with the acetylene light but could shine none. Heard
(111) them scamper away through the forest however. (111) 23: Caught only Mus peromyscus and a closely related one with lighter colors and smaller feet.

(111) 24: During the night two spotted hyaenas were caught in traps set at the mouths of pens where the elephant was skinned. Both were quite rusty brownish and long haired. The ♀ looked very much male until dissection A well developed penis was present between the mammae and no vagina could could be detected. On dissection no testes were found but well developed uterus and two overies as usual. Caught a dark crocidura like those taken at the base camp, also a dark Otomys during the day. Shot a Masai parrot Poeocephalus massaicus. The white necked ravens are about the elephant kill every day but only one vulture has been seen from the camp.

(112) Caught a long-tailed Crocidura. Only one hyaena came during the night and this one escaped from the trap which only nipped its foot. Some of the porters frightened it early in the A.M. and it tore out. Left the camp with the whole outfit at 9 A.M. and arrived at the base camp about 2 P.M. Photographed two waterfalls and several clumps of fern trees on the way. Saw no mammals or any signs of any in the forest. The long tailed Crocidura may be a new genus. The m^1 cuspids are four as in Pachyura but the last is much larger than in that genus and the tail is cylindrical and without long coarse hairs. The teeth, however, have a young appearance, although the specimen seems to be adult. 26: Caught two Arvicanthus b. massaicus and a Mus like the gray one so common on on the Athi but this one is larger and darker. Saw one Arvicanthus

(113) massaicus on the trail through the shambas yesterday. (113) Have seen no bats anywhere on Kenia. The only reptile seen has been a 6 inch Ennecos near the shambas. In the forest seen a similar species once which may be identical with these. Shot two Cercopithecus kolbi hindei from a herd of 25 which I found near the shambas in the forest. After frightening them by shooting they dropped to the ground and escaped through the tall weeds instead of taking the dangerous tree route like most monkeys. 27: Saw some Cercopithecus from camp which I pursued. Shot a young one which which cried out and dropped to the gound in thick bush. An adult, apparently its mother jumped to the ground after it and presumably carried it away for I could not find it under the tree where it fell. Shot a

(114) large Sciurus like S. rufobuatus? in the forest which is (114) colored somewhat different than this species which is a Uganda form. No others

(114) could be found. Saw two of the small Munisciurus jacksoni, but could secure neither. A Kikuyu brought in alive a Rhinolophus like those we secured in caves. This one he found on a tree trunk. Saw a ♀ bushbuck which is the only buck seen by the party on Kenia. Shot 3 adult Colobus and one young from a herd of about 8 found in the forest near the shambas. Stomachs and mouths of them were filled with coarse foliage on which they were feeding. 28: Left the camp at 8 A.M. a half hour ahead of th e safari. Caught during the night at camp a Leggada and another of the dark colored Mus, gray. Caught no squirrels. Shot an old ♂ Munisciurus

(115) jacksoni but saw none of the large squirrels. (115) Shot one of the crested white-winged eagles, S. occipitals which I photographed. Saw no mammals along the route, but saw a good many mounds of the bamboo rat. On the way saw a number of Kikuyu women making wine near the roadside. They were pounding sugar cane with heavy poles in cup-shaped hollows in a log. This pulverized cane was put into gourds. Made camp near a fair-sized stream about six miles from Nyeri boma. 29: Left our camp at 7 A.M. Caught only one Otomys during the night. Had considerable trouble in crossing the Chima River whihh was a foot higher than when we crossed it a fortnight ago. Ran a rope across to which the porters clung while wading the waist deep stream. Saw no mammals on the way in. Photo-

(116) graphed a colony of Weaver birds nests in the limbs of (116) a small tree which overhung the river. The birds were quite numerous and tame and clung about the nests within a few yards of us. This species is P. nigripes apparently. Arrived at Nyeri at 2 P.M. in a light mist. Made camp in front of the boma. Found Clark and Kirten camped with their safari on their way to Fort Hall, and the Tana River. 30: Saw Mr. Baker the forest ranger who is stationed at Nyeri. He gave me the names of some plants. The yellow-flowered pea bush is Cassia didymobotrya, the large leaved tree is Macaranga, the yellow-barked thorn tree is Acacia. The large tree with buttressed trunk in the Kenia forest is probably Cinnamomum camphora.

(117) September 1: The safari left Nyeri at 1 P.M. in the rain. We remained to see the donkeys loaded and took lunch at the P.W.D. Got to camp late at 7.30. The camp was pitched in a ravine just across the

(117) heavy stream which flowed down its center. This is the Omboni River.
2: Remained in our camp waiting for the donkeys to appear. No buck
seen about camp in the open plains. Tracks of waterbuck and duiker seen
in the brush. Saw a herd of baboons climbing about trees. Shot at them
without effect. They barked considerably and after I had passed them
they followed my trail but did not come nearer than 20 yards to me.
Afterward I saw a patch of ground on the edge of the plains where they
had been feeding. All the stones smaller than 8 inches in diameter had
(118) been turned over apparently (118) for snail and insects. In some places
the bulbs of a lily which was just leafing out had been dug up and eaten.
Shot one rabbit, the only one seen. Saw no other mammals and only a few
tracks of bushbuck and duikers. Went out with the head light in the rain
with R.J.C. but shined nothing nor jumped anything except a rabbit, the
eyes of which did not shine. 3: Left camp at 7 in a mist. We soon
struck the plain where the grass was eaten down to the roots and had just
began to grow again. The road skirted Sungyri Hill. Saw one steinbuck
which was flushed in the open brush country near the hill. Saw two small
herd of Gazelle thomsoni of 7-8 each, mostly females with half grown
young. Shot a female. Saw two small herds of zebra of 6 individuals
(119) but no other game. At noon we stopped at (119) a fair-sized stream
running north toward the Guaso Nyiro, we apparently having crossed the
Tana watersheds. This stream was on the edge of the brushy forest and
was lined with the large yews, Podocarpus gracilor. Saw some all black
crows and shot a black-crested Francoline on the plain. In the after-
noon we saw a herd of 6 kongoni and 8 zebra together with 3 warthogs.
The kongoni here are said to be B. jacksoni. Saw several greater bus-
tards, a herd of 15 Gazella thomsoni and a common duiker. When we ar-
rived we found Col. Roosevelt had shot three adult Oryx and one calf, a
♂ eland which was typically patersonamus and two steinbuck, chiefly ♀'s
and think they are all defassa. After crossing the first large stream
where we stopped at noon we passed through a juniper region with occasional
open grassy parks. Quite a good many trees bearing the green milky
(120) juiced manzanita berries were seen along the road. (120) Arrived at the
Colonels camp at 5 P.M. He was camped on a small stream or rather series

(120) of pools well out in the plain. 4: Left the camp at 11 A.M. Day misty
and rainy but became clear at 3 P.M. Passed first through gall thorn
scrub and then open plains and over a small stream. Camped at 5 P.M.
at the Njoro River. This stream is heavily wooded by good sized junipers
and yews and other trees. On the way over saw a few G. granti, one herd
of zebra and a few G. thomsoni. Saw one duiker and a band of 15 baboons
near camp. These latter had turned over the stones in the vicinity in
search of snails and larvae. 5: Started the safari at 8 A.M. Day
absolutely clear which gave us a magnificent view of Kenia and the snow
(121) and glacier on the summit. Took a few (121) snaps at it but the light
was unfavorable. Passed through long grass country intersperced by
mountain streams every few miles along which grew chiefly junipers with
a few yews, both the mountain and plains species and other trees. Saw
several clumps of blue lupines in flower and also the white balsam along
the creeks. One Steinbuck seen and the tracks of hyaenas along the trail.
Game apparently very scarce. The quite recent spoor of a single elephant
seen along one of the creeks. A herd of about a dozen baboons seen a
mile away on the open grassy veldt. They ran for the timber, some 1/4
mile away when they saw us. Saw a herd of 4 G. thomsoni and a striped
Kirkwal hyaena in the P.M. The latter animal was not seen distinctly and
the gunbearers said it was a jackal. Made camp at 6 on a small stream
(122) in the open plains very little wood about it. (122) 6: Set 26 traps
about camp and caught two giant Crocidura, 4 Lohpuromys, 4 Otomys and one
Arvicanthus. These giant shrews and the Arvicanthus pumilio show the
fauna to be closer to the Rift Valley and the Mau than the Athi Plains.
Night clear and cold with a heavy frost. Broke camp at 8.30 and ascended
an open grassy plains to a pass in the rounded hills into which this
slope of Kenia is broken. At this northern point the forest almost
disappears, only a few struggling trees occur along the flank and chiefly
along the west and southern slopes on the hills only. Above the belt
grass and herbs occur and bamboo is wanting. A new tree with pinnate
foliage like the walnut occurs here and is the preveland tree. The minute
flowers are born in long pendulous racemus. Along the road a good deal
of the gray leaved rag weed so common on the Naivasha slope of the Mau

(123) was seen and also large beds of blue-flowered mint and reddish gladiolas. On the way down to Meru we met Lord Smith, Glover Allen and Brooks of Boston returning from the Guaso Nyiro. At the boma we found Kermit and Tarlton who had come in the day before. They had a large lot of game, some 30 specimens as follows: 5 lions, 3 buffalo, 6 Gerenuk, 3 Oryx, 3 Grevy's zebra, 2 cheetah, 1 Ard wolf, 1 Grant Gazelle, 1 Serval, 1 jackal, 1 Cercopithecus, 1 eland, 1 steinbuck, 1 dik-dik. The five lions were from a herd of 11 which they found on the Laikipia plains, two days out of Nyeri. On our arrival at the boma which was about dusk we found the Wamoru in large numbers holding an engombe. They are an agricultural tribe very much like the Kikuyu and talk a similar language. (124) 7:
(124) A report of three cow elephants came in about 9 A.M. and the Col. went out in pursuit. He found them about 3 miles away in the edge of the shambas in dense brush about 6 feet high. By getting on a large fallen tree trunk he could see to shoot at one at 50 yards. This one he got after hitting him about 7 times. It proved to be a bull with about 35 pound tusks and of a somewhat smaller size than the first one secured at Embo. RJC. and I went out at 4.30 with part of the Safari and landed at dark near the elephant. We camped on the edge of the shambas and later made our way in the dark to the elephant, [illegible] which we disembowled. The small elephant flies were very numerous and flew in great clouds about as making the work very disagreeable. 8: Skinned the elephant in five hours, day cloudy and favorable to the preservation. When we arrived at 7.30 we found several Carrovultures
(125) sitting on the carcass and numerous white spots (125) made by their excrement. The contents of the stomach was chiefly twigs, but these were in no condition for identification. The country in which he was shot is tall brush made up chiefly of a yellow-flowered coarse leaved bush, two malvaceae, one the pink herbaceous form and the other a bush with open ponicles of flowers; have preserved these specimens. Teeth of the elephant are apparently his last molars. The two lower in use are 9-10 in formular and the upper two are both 8. They have a peculiar appearance, the islands of enamel projecting up a half inch without any cement filling up the spaces thus resembling a mastadon tooth. 9: Pared down all but one of

(125) the five pieces of elephant. Set three hyaena traps about the place where the elephant fell. Many white-necked ravens, egyptian kites and
(126) a small white-bellied vulture hoovered about the place today. 10: Caught an old ♂ leopard only. This one had only dragged the trap a few feet through the thick brush. When I approached within fifteen feet it growled and charged out savagely as far as the trap would let it. I shot it several times in the head with the 22 but it took a side shot to reach the brain. This leopard wasthe size of the other but weighed only 100 pounds, it being in lean condition. Col. Roosevelt on his way to the boma yesterday saw an animal at close range like a large jackal which he thinks was an abyssian wolf. Left the camp at noon and returned to the boma. K.R. and Tarlton came in late with a ♂ elephant about the same size as the
(127) one we skinned, ivory 64 pounds.(127) 11: Left the boma at 2 P.M. with the safari for the elephant camp at which K.R. shot his ♂. T.R. and Tarlton went down at 7 A.M. to hunt for a cow but did not find the herd. at 4 P.M. T.R. shot a large bull with 50 lb. tusks, (104 lbs. pair). This one measured 10 feet 9 inches at the shoulder. We pitched camp about 5 P.M. in a bean field close to the river. On the way down we passed through melie and bean fields and banana groves. Much avanthus grew along the road and in many places it was used for hedgeing to which it is well suited. Saw quite a number of Dracenas of large size in the fields and afew date palms on the river. According to the barometer the boma is 5500 feet; this camp is 4000 feet and quite warm at night.
(128) 12: In the morning I went out to the elephant to get the ears and measurements. The men had already cut up the head and the feet were off also so photos and measurements could not be obtained. Stomach contents appeared to be the twigs and leaves of the [illegible] blossom bush and some beans from the shambas. The country about the kill was chiefly covered with thick heavy grass 6 or 7 feet high with occasional flat-topped acacias. Late in the P.M. news of two ♀ elephants came in and T.R., K.R., and Tarlton went out but failed to find the game. Dombeya, the leaves, flowers and bark and twigs of which were found in the elephants stomachs is the common bush here. 13: Caught several Nus (grey) in the traps set along the river. K.R. and R.J.C. went out early to try to locate elephants.

(128) At noon a Meru tracker came in and reported two cow elephants about 6
miles away. T.R., Tarlton, R.J.C. and K.R. went out in a few minutes.
At about 3 P.M. T.R. came up with them and shot one of the cows at 80
(129) yards. Her toto and the other cow (129) with her toto fled in the tall
grass which prevented a shot at the young which were hid by it. The
country in which they were shot was thick high grass, about 6-7 feet high.
14: Caught two more sorex along the river. Left with 50 men and R.J.C.
for the elephant at 7 A.M. Saw only a bunch of 6 zebra. Arrived at the
elephant at 9 A.M. Found it in very tall grass about 8 feet high near
a small stream and well away from any trees. Stomach contents shamba
beans and twigs. The large toto elephant did not return but remained
with the other female and her young. This cow was very old, her last
molars badly worn. She was still in milk although the toto was two years
old. Found two old elephant kills near by, both the the skins dried to
(130) the bones and the (130) skulls undamaged by chopping out of ivory. These
were secured. They were the female and her calf apparently and lay within
30 yards of each other and were the same age as regards weathering. 15:
Heard during the night a lion roar several miles away to the east. No
hyaenas about camp. 16: Finished paring down the elephants, weather
very dry and hot. Thermometer 95° in the tent. R.J.C. shot a ♀ Burchell
zebra for food. He also saw a ♂ Cobub ellipsiprymnus. 17: Left for Meru
boma at 8.30 A.M. in a hannock with the safari. Saw no game on the way.
Took photos of Acanthus hedges and of a large Dracaena. Arrived at the
boma at 3 P.M. and put up at the station with Emmet. Meru boma has been
determined to be 5300 elevation by two triangulators. Both of our baro-
(131) meters give 5600.(131) 18: T.R. & K.R. came in from Ngongo with the
large ♀ elaphas tusks and ears and the Rhino horn. 19: T.R. took down
notes on all the rodents, Insectivores and Chiriotera collected thus far.
20: R.J.C. and Tarlton finished packing the skins and bones for shipment
to Nairobi with me. 21: T.R. and R.J.C. left for the Guaso Nyiro via
Neumann's Boma. Estimated time before arrived in Nairobi, one month.
K.R. and Tarlton went on Safari for Koodoo at Hennington, via Nyeri where
they expect to obtain posho for the trip. Caught a ♀ Mus gray in the boma
which is the common house mouse of the country. This one has 17 embryos.

(131) 22: Set traps about the bourse in which the elephant skins and bones had
(132) been kept and into which hyaenas had dug and destroyed some of the ribs.
Mice had also eaten two holes in the skin. Several of Mus ugandae were
caught about the house but no others except a Leggada. It is certain that
no rats occur about houses and therefore these are responsible for the
damage. One female caught contained 10 developed embryos. No hyaenas
came to the traps set last night. The mammae on each side numbered 9,
that is, 9 pairs and were strung all along from the inguinal region well
up on the chest. 26: Left the Boma at 8.30 A.M. with 40 regular porters
and 110 Meru carrying the two elephant skins and the Guaso Nyiro col-
lection of K.R. Camped at the first stream about 6 hours from the boma.
Altitude 8400 feet. The boma was 5300 feet. Saw a herd of about 20
(133) zebra near the camp on new grass; (133) with these was associated an old
Oryx with a single horn and one Thomsoni gazelle. Saw no other game
mammals. Noted a secretary bird and 5 white winged greater bustards
near the zebra. 27: Night windy and cold the temperature being 46°
in the early A.M. Passed an unpleasant night without a bed, posho for
porters or jocula for the Mazunga because the Wameru did not reach us
but camped several miles below. Went down the creek half a mile to look
for posho. Saw a lioness coming up the trail toward me on the burned
off ground apparently coming to water at the place where we were camped.
She came within 400 yards without seeing me on the hillside. At this
point I returned to camp for the 30 calibre rifle, I being armed with the
(134) 22 cal. alone. When I returned I could see nothing of her (134). While
watching a serval cat walked out of a small patch of bush left in the
burnt plain. I took three shots at this cat at 300 yards but failed.
I expected to flush the lioness by these if she was in the brush but she
apparently had returned to the brush along the creek. 28: Night windy,
no carnivores heard. Left at 8.30 A.M. Saw the old one-horned Oryx on
the hillside where I first shot at him, also the zebra. Game is apparent-
ly very stationary. Saw four zebra before reaching the summit. The
summit is 9500 feet and our old camp west of it only 300 feet lower, this
is 9200 feet. Saw one oryx just a little below the summit. Near camp a
porter stated he saw 6 eland so I went out with him but we saw none. Saw

(134) eland tracks however near the creek. Saw a flock of 12 ostriches near
(135) the creek, sexes in equal number. A large bush 6 feet high and several in diameter common on the summit. Collected a few twigs. It is apparently a heath. Masai said there was ice on the water left in the pans. 29: Night very cold, in the early morning after sunrise the cold was 40°. About the creek there was heavy frost on the vegetation and the ground was slightly frozen. Two species of small heathers were common about the camp. Day perfectly clear. No carnivores heard at night. About 10 A.M. I saw three reddish pigs, a ♀ and two young feeding in some short grass about 500 yards away. Before I started after them they bolted over the rise they were on down into a brush creek and I saw them no more. The men said they were waterbuck on account of their color. They were the bush pigs, Potomochorus. Saw many fresh buffalo tracks where the pigs
(136) had been. (136) Earlier I saw a jackal with the whole body hair heavily black tipped. Reached the Guaso Nyuki at 2 P.M. and camped, altitude 7500 feet. This is the river where we saw the elephant tracks on the way to Nweru. It is well lined with trees, chiefly Podocarpus and junipers. Game paths and dung numerous. 30: Caught in the edge of the woods 3 M. peromyscus, 1 M. peromyscoides, 1 Macroscelides, 1 Graphiurus and 1 Mus, small and dark. The night was fairly warm and the Merus sang for an hour during the dog watch. Day absolutely clear but it clouded up at 10 and remained so the rest of the day. This is the usual sort every day. No carnivores heard during the night. Saw an oryx after we got out on hour from camp. When near the Njoro River I saw a herd of about 20 eland. These were all reddish except one and at a half mile they were
(137) mistaken for kongoni. (137) Stalked them and put a soft nosed in the chest of one but failed to wound it much, and it went away with the others. As they ran away they jumped over one another, their activity being equal to the impalla. These were apparently all cows, at least I saw no gray or large individual. Later I saw a herd of about 25 Oryx, chiefly cows, with small young about a month old. This herd I circled and fot a few 400 yard shots at them and finally hit an old female at this distance as the herd ran past me. She was back broken and I took several photos of her wounded at 25 and 15 feet. Closer than this I did not think it safe

(137) to go although she showed no fight and only struggled to rise and fall
(138) again in an effort to get away. Later I shot a ♀ steinbuck. Contents of stomach twigs and coarse leaves and seeds of Solanum. Altitude of Njoro Camp 6900 feet, that is, 700 feet below the Nyuki camp. Plains chiefly very shot green grass and hard soil. Along the road for several miles the gall thorn scrub is quite abundant but does not go above 7500 feet.

October 1: Heard no carnivores in the night. Saw some lion tracks in the hardened mud of the trail some 3 days old. Saw two warthogs on way, also a large ♂ leopard which I shot through the body at 300 yards with a solid. This made it jump forward and then swing round and bolt for the forest some 50 yards away. Searched some time for it but without any success. Later saw a herd of 5 eland and a ♂ with 4 cows which I tried to stalk and failed. I shot into them at 500 yards when they
(139) started off by jumping over (139) each other as usual. They were associated with a herd of 5 Grant Gazelles. Saw three G. thomsoni but no kongoni anywhere. Reached the Willi at noon and camped there. Went out about sundown but saw no game nearer than 4 miles. Heard a jackal give his evening call which sounded much like the wailing of a coyote. I saw him distinctly through the glasses as he was howling. Altitude of camp 7000 feet. 2: Left the camp on the Willi at 6.30; day misty but soon lifted. Saw very little game, only a herd of gelon, a few thomsoni two steinbuck and one jackal. Arrived at Nyeri at 2 P.M., about 3 hours ahead of the safari. 3: Remained at Nyeri storing the collection in the jail. 4: Left Nyeri with safari of 20 Mikuyu for Dr. M's camp at the
(140) forest station. Made camp at the Amboni River (140) where I had made camp with R.J.C. a month ago. Passing through the forest near Nyeri I saw a band of Cercopithecus kindei and some of the large white and black hornbills near a Masai kraal. Passing through the woods the air was perfumed by the flowers of Acocanthera adulis which was in flower and very common through the edges of this forest. The large plum-like fruit was also ripe. This had a red flesh like that of a beet and is edible and sweetish although from the leaves and bark the arrow poison is made. The olive Oleo chrysophylla is also very common in this forest but the trees are all small. 5: Left camp early. Turned to the southeast at Sungaryi hill and

(140) then paralleled the Meru Road. Saw two pair of steinbuck and one single
(141) one near the hill. Saw a small herd of zebra at the hill also. Farther on near the Willi we saw two large herds of zebra. After crossing the Willi I saw a single kongoni lying down at 600 yards. I approached it under cover of a bush but got only a 200 yard shot and apparently missed it. Made camp on a small stream about 2 hours beyond the Willi. Saw quite a lot of Tarconanthus and Dodonaea mixed with the juniper. On the small stream runing north of Sungaryi I saw a Grime's Duiker but could not get a shot at it. 6: Left camp early and made forest station at 8.30. Went up the mountain to Dr's camp with Lidford from the station. Forest at base made up largely of Podocarpus, junipers and an oak-like tree. At about 8000 feet the bamboo became numerous and continued up to the Dr's camp at 10,000 feet. With the bamboo only the Podocarpus
(142) was seen and only scattered individuals then. (142) Saw tracks of Harvey Duiker and leopard in the trail all the way up. Two herd of Colobus were heard in the bamboos. Arrived at the Dr's at 1 P.M. 7: Left the Dr's camp at 8 A.M. with the Kikuyu porters and the Dr. ascended to his old camp at 10,700 feet. This was a little above the bamboo which stopped at about 10400 feet, Together with the Podocarpus. At this camp the giant hither (Erica) began and at once formed the predominant vegetation up to 13,000 feet. Near also the walnut leaved shumac fruited tree was seen growing from the upper edge of the bamboo to from 10400 to 10700 feet; this tree was seen on the Meru Road from 8800 to 9500 feet. Between this camp and the lower one at 10,000 saw Sambucus, Rumex, Thalictrum, Alche-
(143) villia. Here at 10,7000 the Hypericum (143) reaches it greatest growth, forming brakes and small trees 15 feet high and 4-5- inches in diameter of stems. Here also a gray leaved compositae bush, same as the one on the Meru road at 9500 formed a belt from 10,400 to 10,700 feet. At the rocking stone camp, the porter's upper camp at 12,100 feet we were in solid heather belt. Near the rocks a few of the large Senecia keniensis grew near the rocks which was their lower limit. About the rocks a smaller leaved tree Senecio grew but was seen nowhere else. Here a few Hypericum were seen at their upper limit. The rocks at this place were agglomerates, often weathered into pinnacles with boulders on their apex. The rocking

(143) stone was one of these sort. From the rocking stone up to the upper camp at 13,700 the country was scattered heather up to 13,000 feet, where the heather stopped the Giant Senecio Kinensis became prevalent and formed groves. Here also began the filamentous Lobelia which ran into the snow
(145) line. Made camp where the Dr. had camped, at 3 P.M. (145) Left the peak at 11 A.M. and returned through the fog to the upper camp at 1 P.M. packed up the outfit and left a 2 P.M. Descended the mountain rapidly reaching the Dr's lower camp 8,600 feet at dark. Pitched camp here with J.A.L. and the Dr. The common duiker C. grimmi extends up the mountain as high as the heather, 13,000 feet. It is quite common at the limit of the bamboo at 10,300 feet where the Dr saw two. Elephant dung is quite in the trails made by these animals above the bamboo zone extending as high as 12,000 feet. 9: Remained in camp all day with Dr. M. and J.A.L.
(146) The night was chilly, thick ice and frozen ground occuring in the morning; the thermometer showed 22° above. Lidford came up at 4 and one of his boys remained with us sitting near the fire all night. 8: Started at 7 A.M. with Lidford and his boy to climb to the snow line. Passed through heavy forest of Senecio keniensis up to the summit of the ridge at about 14,5000feet. The ridge was chiefly here pebbly ground and boulders, muddy when thawed by the sun. About the large boulders were small patches of snow. At snow line about the lake margins grew the bunch grass and a few of the filamentous lobelias and a very few short senecios. About the rocks were a few Alchemillas, yellow compositae and Helichrysum and Arabis. In the upper lake which was partly frozenover at 11 A.M. grew a blackish moss and a trailing water herb. The rocks about here were covered spar-
(147) ingly with yellowish (147) and grayish Usnea and a black fungus. The peak clouded up at 11 A.M. by drifting mist and fog and we returned. About the rocks near the lake one hyrax was seen and the pills of others in the crevices. One was heard calling at a distance. Dung of a carnivore, apparently a leopard, was seen in a few places under rocks on the ridge. The rock on the peak were largely vertically bedded and rusty reddish and formed into perpendicular cliffs. On the ridge we came up they were chiefly boulders of dark greyish blue with larger crystals imbedded like porphry. Some reddish feldspar like stones were also seen. One of the

(147) commonest rocks was a fine grained bluish rock like basalt. The runways of Otomys were seen as high as the ridge in the bunch grass. J.A.L. and the Dr. saw them even higher, at the upper lake (margin). The large rock hyrax began about the Rocking Stone at 12,000 feet and continued to the snow. At the upper lake thesewere the nawed basal leaves (148) of Lobelia due to thés animal, apparently. Their shrill was often heard in the dayn time but seldom at night. However, the Dr. and J.A.L. heard them much at night, their cry then being identical? to that of the tree hyrax at lower levels. [Page 145 should come in here, having written it ahead of its
(152) proper place]. (152) October 10: Left the Dr's camp at 7.30 with the 25 Kikuyu. After descending a few hundred feet the bamboo disappeared and the forest was chiefly Podocarpus and a very few juniper trees. Photographed a very large Juniper, about 8 feet in diameter at 8300 feet. They extend up to about 8400 feet, but are not seen in the bamboo anywhere. The elevation of the creek at the beginning of the forest was 8000 feet. Here the forest is more mixed although Podocarpus predominates, juniper second, a few figs and olives. The forest station which is out on a bare hill is 8100 feet, a little higher than the foot of the forest. I saw a pair of secretary birds in the meadow near the station. Made a cut over the hills to the Meru Road at the Enjoro River. On the way down, two miles below the station I saw a herd of 12 eland near the summit of a
(153) small hill. Attempted to (153) stalk these but they bolted when werwere still a mile away. In the same region found many buffalo trails, some with fresh dung on them. Rhino trail also common. An old ♀ with a toto threatened the porters near the end of the trip after I and several porters had passed them a long way and were out of sight. The Kikuyu made a loud noise and threatened the brute with their sticks and she finally bolted away. Saw a steinbuck near the Enjoro and a herd of 18 kongoni. These later I tried to circle in the open but could not get closer to them than 600 yards. Two of the herd were small totos, about one month old. Arrived at the enjoro at 3.30. Altitude of camp 7000 feet. Went out last night shining with the Dr. on the trail through the forest but saw nothing. Did not flush any buck or carnivore. The tree hyrax were heard everywhere
(155) shrieking but we could not shine them. (155) 11: Got away from the Enjoro

(155) camp at 7 A.M. Found the same herd of Jackson Hartebeest in aboutthe same place as yesterday. They were just as wary and I did not get closer than 600 yards. Farther on I saw a few pairs of Thomsoni and one herd of 20 zebra but did not get near enough to shoot any. Camped at the Willi at the old camp. Aneroid registered 7150 to 7200 feet for this camp. The trees along the Willi are chiefly Podocarpus gracilor, Eugenia cordata and the puff-ball tree along the stream margin. Farther back the forest is juniper, Olea chrysophylla and Acocanthera and Carissa brush, and Euphorbia candelabra. Collected along the stream a small spidery heather which grows 3 feet high. Saw a Hypericum which resembles the alpine species, but the leaves are broad and three times the size of the other. Collected some of the purple compositae which was seen at 10,200 feet on Kenia.
(156) It is also common at Nyeri and I believe also at Naivasha and the Sotik. Its altitude range is greater than that of any other Dicotyledon. 12: Left the Willi early. Saw a single kongoni about two miles from the camp but could not get within 600 yards of it. Saw three herds of zebra but they stampeded at 500-600 yards. Near the Masai Manyata saw several herds of Thomsoni gazelle and one jackal. Stopped at the Omboni for a short time. A grass fire was raging northward and crossed the road near us but no buck or carnivores could be seen fleeing before it. In passing through the olive forest I came upon a herd of Cercopithecus. These were associated with the large black and white hornbills as were the others I saw in the same forest on my way out a week previous. Apparently there is some sort of association here between these birds and monkeys. Reached Nyeri at 3 P.M.
(157) About the Omboni the (157) Acocanthera edulis form scattered groves on the hills and edge of the stream forest. The large trees were not in blossom or fruit but in the olive forest the bush-like trees were white with sweet scented blossom and many were purple with ripe fruit. The Kikuyu do not care for these blossoms but they eat the greenish red berries of the Carissa which have milky juice and are very acid. 13: Mr. Ayre of the K.A.R's came in from Naivasha on his way to Marsibit where he will be stationed. He has recently been on the Tana River from the mouth far up nearly to Kenia. Here he has fought Somali cattle herders on the north bank. He describes the country about 150-200 miles from the mouth of the

(157) of the river as thorn scrub with a heavy forest along the river banks.
(158) Harvey's duiker is common in the forest. (158) On the north bank are Hunter's Antelope, Topi, Beisa Oryx, Abyssinian buffalo and very large elephants. On the south bank the fringed-ear Oryx if found, the cape buffalo and small elephants. There is probably a great difference in the small mammal fauna on opposite sides of the river. The vegetation is the same on both sides. Hippo are rare and have almost been exterminated by Pokono who eat their flesh. Mr. Ayre shot an elephant with immense tusks 10 feet long, weighing 125 and 130 pounds respectively. One of the tusks scraped the ground as the elephant walked and its lower side is much worn. When seen this old ♂ was resting his tusks in a small tree. Rhino are quite rare on the Tana. Hoggars Oribi ascends the river 100 miles but is much commoner at the mouth. Hunter's Antelope is very rare, only a a few herd were seen.

(154)

(159) 15: Left Nyeri at 10 A.M. with 120 men, 60 of which were Kikuyu. Camped about 4 miles above the Kikinangorra on the edge of a small swamp at an elevation of 9200 feet. The country here is practically all bamboo. The podocarpus are found about a quarter mile apart. Saw no mammals on the way up. The bamboo began at about 7500, well below kikinangorra. The common scrub along the route in the podocarpus forest was a burr fruited sort with white apple-like blossoms. In the bamboo the under growth is almost exclusively the red balsam. On the lower edge of the forest I met some kikuyu peeling the bark from the shoots of the yellow triumfetta which they braid into rope. The swamp where we are camped is chiefly large
(160) bushes heavily (160) covered with white Helichrysum?. In places the purplle thistle like compositae is common. At one edge of the swamp are many heath bushes about 5 feet high. The large leaved Maracana trees were just blossoming, they apparently grow as high as 8000 feet. The rubus was also in fruit. It is a real red berry-like affair of small size. 16: The traps I set in the Helichrysum near camp caught only one Lophuromys which was partly eaten, probably by a giant shrew. Some rodents which cuts the Helichrysums deposit them in bundles. Left camp at 7 A.M. At the small bridge where Jackson apparently camped at 9900 feet, I saw the first Alchemillia and Hypericum. The meadow here was filled with the peculiar filigree stemmed thistles and the white Helichrysums. Higher at the eastern summit
(161) at 10,300 feet a willow leaved Alchemillia grew in masses like the true Alchemillia. Samburus were common everywhere from the Kikinangorra to the moorland country. Rumex abundant at 9500-10,000 feet. Made camp on the western edge of the moorland near the river in a grove of giant heather, hypericum and sage compositae. The hypericum grows here to 8-10 inches in diameter as does also the sage. Many of the walnut trees were seen here also. Flushed two Abyssinian Duikers near the bamboo house in the center of the moorland. Altitude of this camp 10,500 feet. 17: The traps set about camp caught a good series of mammals. There were 2 Oemomys hypoxanthus, 4 Otomys, one light Mus peromyscus, 6 Lophuromys, 6 Crocidura, medium size, and one Tachyoryctes which is about the size and color of those from the
(162) bamboo zone of Kenia. Went out (162) in the night in a mist shining but saw only one duiker in about 6 miles walk along the road. Got away early

(162) and made camp at the base of the mountain where we camped previously. I was surprised to find that this camp was 9100 feet high. The vegetation about it is largely hypericum. The bamboo zone extends down to about 9300 feet which is about as low as it comes here. Saw a few patches of Alchemillia at about 9800 feet. There seems to be no dwarfing in tree vegetation here, the onlynthing noticable at the upper edge of the range of trees like juniper, podocarpus and oleo is a thining out in numbers. Shot three of the mountain francolins near the summit. Saw many buck tracks (163) on the abandoned wagon grade near camp. These were (163) chiefly duiker Some were large tracks size of a kongoni or waterbuck and may be those of bongo. 18: Camped at the base of the range in the same grove where we camped on the way over. Set a number of traps about the logs. Caught 2 Dendromys, 2 Mus minimus, 4 Otomys, 1 Arricanthus pimilio, 4 Lophuromys, and two Tachyoryctes. The Otomys, Lophuromys and Tachyoryctes seem to be the same species as on the moorland. If this large Tachyoryctes is the same as the alpine one on Kenia it is continuous here on the western slope with the rift valley one, the burrows being abundant all along the road to Naivasha. Saw a good many duiker, bushbuck and waterbuck tracks above (164) camp on the old wagon grade. On my (164) way over the Naivasha Plains I saw several bunch of kongoni at a distance, many zebra and a few gazelles. Saw a pair of variegated jackals on the road, one of which I shot. Made camp at the base of the escarpment where we had camped before. Mr. Ayre was camped there still. He gave me a bunch of skulls and a skin and skull of a Lophomys which he had snared in the rocks on Hyrax runways on the cliffs. While I was sitting in his tent a ♀ bushbuck and a half grown unspotted young came out of the brush and fed about on the hillside. We finally went up after them but they disappeared before we started and we saw them no more. Both tree and rock Hyrax occur about Ayre's camp. (165) Ayre took us to some of the trees which produce the (165) yellow fruit, size of a cherry which I had seen scattered about the road on the moorland. These are quite tart and many seeds. Collected a branch. 19: Left Ayre's camp at 8.30 and arrived in Naivasha at 11 A.M. Saw only a secretary bird along the way. Took a few photos of the station and Lake on the first escarpment east of the lake. Olives and junipers are the predominant trees.

(165) about the Naivasha Plains escarpment and from there to the lake. The barometer registered 7000 feet.at Naivasha. Ayre told me that someone at Gil-Gil had recently caught three caracals there. This is the only capture of this species reported for the country. He has been successful in catching both tree and rock hyrax with snares arranged so as to catch (166) them by the feet. Snares set so as to catch them around (166) the neck usually frighten them. He has been able to keep them alive but only for a few weeks, by feeding them on the foliage which they normally feed on. 25: Left Nairobi at 3.30. Noticed on the hills a few miles out quite a number of Erythrina trees in blossom like those seen at Meru. Saw also some of the heavy leaved trees, Combretum, with fruit, first seen at Kitanga. Arrived at Naivasha at 10 and stopped for dinner. 26: Daylight at Elburgon. Passed over the Mau summit at 7. Only game seen was one herd of kongoni on the summit. Soon after leaving the summit we passed through flat topped acacias, their upper limit, also Oleo chrysophylla, Dombeyas, Cedar, etc. Arrived in Landiani at 8 A.M. Left Londiana with (167) the safari at 2 P.M. and went out (167) about 5 miles on the Ravine road and camped near a small stream. Near the camp I saw a herd of 12 Jackson Hartebeest and two Topi. Country rolling and grassy prairie and thick forest. 27: Caught two Otomys and two Mus, the latter in marsh, also one partly eaten leggada. Saw a bohor near the traps. Left early at 7.30 and made Ravine Boma at 1.P.M. and struck camp. Country rolling hills, chiefly forest with narrow intersections of grass land. Forest above edges chiefly junipers and podocarpus gracilor with olive and the Eucalyptus (clove) flowered tree. A few camphor bushes seen and the Acacia albida very abundant below the boma. Saw nongame or large birds. The white bellied red-tail Hawk seen occasionally. 28: Caught two Otomys and one Mus peromyscus in the forest. Saw no game on the way to the Roan camp. (168) Made camp at 1 P.M. on a hill at 8800 feet. Barometer registered 250 feet below the elevation given on the map at Ravine, namely, 7000 feet. Most of the way was through forest of juniper, podocarpus, olive and the eucalyptus flowered tree which was very abundant. Much of the forest supported Acanthus thickets. Near the Roan camp we passed through two patches of bamboo in which were many of the blue violets and the blue Scrophulariaceae

(168)

as in the Aberdares and Kenia. The country about the roan camp is chiefly grass land intersected with deep heavily wooded ravines in which the forest is surrounded by dense thickets of bamboo. Saw three roan at about 3 miles from camp and attempted to get near them in the ravine but the ravines were so deep and heavily wooded that the time was too short to (169) allow us to get to them. (169) 29: Went out with T.R., K.R. and Tarlton for Roan. We had Katuptup a Ndorobo guide with us. He located a herd of about 20 in a ravine feeding. T.R. and Tarlton stalked them but they bolted and none were secured by T.R. by his running shots. Later we started them again in the open when they bolted into the forest and through the bamboos where some of the boys trailed them. They eventually came out in about an hour. K.R. shot and ad. ♀ and a young ♀ in the afternoon and T.R. shot a young ♂ defassa from a bunch of 3 which he stalked for roan. While we were eating lunch a well horned ♂ bushbuck walked slowly through the mixed brush on the hillside opposite. 30: Went out with T.R. and J.T. to the same country where the roan were seen yesterday. We saw only 3 (170) kongoni. (170) On one of the hilltops I noticed a clump of giant heather and some of the purple compositae so common at timber lines of Kenia. K.R. shot a ♂ roan, an old solitary bull, the only one he saw. 31: Left the roan camp at 7.30 in a heavy mist. Saw a ♀ bushbuck and young near the junction of the Londiana road. Later T.R. shot a ♀ Grimm's Duiker. Made camp at 5 P.M., after march of about 25 miles, in a large ravine on the edge of open grassy plateau. Altitude of the camp 7600 feet. Flat topped acacias and juniper the common trees. Before reaching camp saw about 8 herds of 10-15 kongoni in the grassy flats. The highest summits passed over today were 9000 feet and usually open bald hills. The only large birds seen were a single secretary and 3 ground hornbills and several (171) large slaty pigeons. (171) K.R. saw two steinbuck but no one else have seen them at this high altitude in the country is not suitable. Caught in the forest last night one immature Mus peromyscus and one adult Mus like a small peromyscus but in fulvous pelage. The large pills of a rabbit were seen everywhere about the roan camp and in the road but none were flushed in our extensive rides for game.

(171) November 1: Set no traps last night on account of the late arrival. Soon after leaving camp at 8 A.M. T.R. shot two ♂ Jackson Hartebeest from a herd of a dozen. The larger one weighed 470 and the other 395. Saw many other herds of from six to fifty individuals. On the open grassy plains. I saw one herd of three Oribi which were joined by two others. K.R. shot a ♂, T.R. saw many but secured none. Along the road I saw many bared spots in which were piles of their pills. They seem to have the same (172) habit of fixed dunning places (172) as the dik-dik. Saw four zebra at a distance of a mile; these were the onlymones seen. Flat-topped acacias and junipers and gray olive along the streams. In the grass the red spheres of the thistle leaved herb seen at Ravine appeared again at 7400 feet. Made camp at 3 P.M. on a small stream running toward the lake along which grew a few trees. Altitude 7400 feet. Trees along stream chiefly Engenia which were in flower. A few Acacia, yellow edible Kikuyu fruited tree and purple disk compositae buch common and some Carrisa bushes. 2: Stopped a day at the store camp. Went out early with all the mazumgas. T.R. shot a ♀ Oribi near camp. Soon after we pursued what looked like lions at 2 miles but never saw any again. T.R. shot a ♀ and young ♂ Ori bi. (173) Saw many Jackson's kongoni and several bohor in the meantime. At noon we ate lunch at the stream and examined an old lion den in the thorn trees. Saw a ♂ bushbuck on edge of the trees in heavy grass but it went away before T.R. and party returned. We examined a small kopje near the stream from which we could see a large amount of country. Two large herds of kongoni of about 40 animals each were in sight, with which were mixed about 20 zebra. A single ♀ defassa was on the plain. On the way up we seen a rabbit, the only one seen so far and this one seemed much darker and smaller than the Athi Plains forms. Several Oribi and bohor were flushed in the long grass and T.R. shot a ♂ of the latter. Most of the Oribi seen were (174) in pairs or parties of three while the bohornare more solitary. (174) Saw many mounds of Tachyoryctes and many large holes like those of ard vark or some burrowing carnivore. 3: Left the camp at 7 A.M. Shot pigeons, C. artiquix, which flew in small flocks up the river course. The country between this river and the Sirgoit Lake is open plains without any trees along the streams which are shallow marshes. Only grass was seen in the

(174) plains, the thistle like scrubs so common about the store and Lion Kopje being lacking. At Sirgoit Lake many Carrisa bushes in flower were seen. Many thousand kongoni seen chiefly in herds of from 300-500 mixed with zebra. No topi seen. Oribi were seen everywhere on the grassy plain in pairs and trios. A few reedbuck seen in tall grass. Two common Duiker seen near Sirgoit. T.R. and K.R. saw two maned lions at a mile distance (175) but lost them in the grass. (175) 4: Went out early with T.R. and K.R. leaving the safari to follow from Sirgoit. A police officer and his dog went along and beat the swampy swales for lions but flushed none. We saw large herds of Hartebeest, zebra, and a herd of 30 defassa waterbuck. We also junped a steinbuck, several oribi and a bunch of 4 jackals. At noon we went west along the edge of the acacia scrub. We saw three of the reddish ground monkeys which Tarlton spoke of. They appear to live on the veldt and never take to trees or occur in flocks like the baboons. From a small patch of reeds about 9 hyaena crocuta were flushed, one of which was shot by T.R. Later another was shot by K.R. lower down the same swale. Both were ♀'s. Apparently they were a single pack as the patch of reeds was only a few yards square. 5: Went out to look for giraffe (176) in the edge of the acacia (176) scrub. About 9 A.M. we found a herd of 8; 3 bulls, 3 cows and 2 young or immature. K.R. picked out the largest ♂ and soon had several bullets in it. We followed, kept within about 50 yards of the herd as they ran. Finally the wounded ♂ was cut out and we drove him up to camp where K.R. shot him dead. This bull was a very large old one with very heavy horns but in color it is very light, much lighter than the females. One ♀ in the herd was particularly dark and black. Apparently there is no color difference with tippelskirchi but the horn development is much greater. Stomach contents twigs and leaves of the flat-topped acacia. While looking for giraffe we saw one bohor, 3 steinbuck, a rabbit, many kongoni and zebra and one Oribi. The vegetation about this camp is chiefly flat-topped acacia, Carrisa bush and a (177) white labiatture? like hoarhound, (Leucas). (177) 6: Remained in camp all day paring down the giraffe. T.R. and K.R. went out for the buffalo but bagged only a ♀ Oribi. The acacia scrub about here has all the tips and shoots eaten off for about 6 inches, apparently by giraffe, although the

(177) droppings of this animal are not common here. The blue lupine like the one found on the Meru road is quite common here in the tall grass. 7: T.R., K.R. and Tarlton went out on the edge of the grassy plains for lions and kongoni. 4 kongoni were shot and two spotted hyaenas from the swamp near where they were flushed before. Caught nothing in the ardvark burrows. Shot a black-bellied bustard on the way out. In the rat traps I secured only a Dendromys. 8: Made a four hour march toward the Uzoia River. (178) Camped at 1 P.M. at the head (178) of a small swamp. On our arrival at this swamp two herds of giraffe, one of 15 and the other of 10 animals were within about half a mile and moved off slowly when we struck camp. Saw only kongoni, zebra and oribi on the way but these in large numbers, but small herds. One topi seen with some zebra and kongoni. In crossing one of the head streams of the Uzoia a large maned lion was flushed but the country was so rocky and overgrown with tall grass that he was soon lost. Much elephant sign seen along the way where they had broken down the scrubby acacias. Nearly all the way led through scattered acacia scrub with a few Carrisa bushes and Olive trees. An oleander-like tree appeared with these which seems to be related to Eugenia which latter (179) was also seen along some of the streams. (179) 9: Caught 3 large Crocidura and two Mus (housemat) in the swamp. Left early for the river. Saw many kongoni and zebra on the way and a few oribi and reedbuck. K.R. shot a young ♂ warthog. Reached the river at 1 P.M. and camped. When we arrived a herd of some 15 Cobus koh were in the swamp. This herd had but one ♂ and in coloration the animals were very close to Impalla. Later I saw a herd of 5 with a single ♂ across the river. T.R. shot in the P.M. a young ♂ and an old ♂ Cobus koh. There were quite a number of small willows along the river with old catkins about their bases. These are the only willows I have seen except a supposed bush on the Guaso Narok of the Sotik. None are listed by H.H. Johnston. Altitude of camp 6000 (180) feet. Saw several kigelia trees and (180) some wide spreading fig trees along the way to the river. Most of the country was covered by very long grass with a few bushes of Carissa, Olive trees, figs and kigelia. 10: Remained in camp all day. T.R. shot two Cobus koh and one large ♂ defassa. K.R. shot an old ♂ kob and a young ♀ koh. I caught in the dozen rat traps

(180) set near the river only an Thamnomys hypoxanthus and a Lophuromys which was a very large ♀. 11: Remained in camp. T.R. sent in two ♀ Cobus coba. I caught a ♂ Otomys, two Mus minimus and two Lohpuromys in about two dozen traps, also one Genetta. Watched for bats during the cl ear evening along the river but saw none. 12: Went out with the bwanas to

(181) assist in driving a large (181) swamp near camp. K.R. and Tarlton remained on one side and T.R. and myself on the other while some 50 porters walked through the reeds shouting and beating with their sticks. The swamp was an open reed affair like giant flag some 5 feet high. Some dozen ♀ bushbusk and 2 ad. ♂ were driven out, one ♀ and a young ♂ being shot by T.R. Most of these buck lay very close and were only moved when the porters came within a few yards. Some even bolted back through the porters. About 6 ♀ reedbuck were flushed but no males. When frightened these bounded away in high very graceful leaps with the heads held upright. About 2 miles of swamp was beat but no other animals were flushed. The only birds seen were a pair of Stinx? and several jack snipes.

(182) Caught in the traps in the morning a female black-backed jackal and a ♂ spotted hyaena, one Crocidura and 3 Otomys and 2 Lophuromys. In the P.M. K.R. shot a large Uganda leopard and a ♂ defassa. 13: Caught another ♂ Hyaena crocuta and a ♂ jackal where I caught the other ♀, apparently the mate of the first one. In the mouse traps I had a dormouse and a young Crocidura. T.R. went out with Tarlton and sent in a ♂ defassa and 6 kongoni for meat and the skulls for specimens. K.R. shot a large ♂ defassa, a ♂ kob and a ♂ kongoni and found a ♀ kob dead which he had wounded the day before. T.R. wounded a bushpig, one of a herd of 6 he saw in the long grass. 14: Moved camp a few miles to a swamp above the escarpment. Caught nothing in the traps. Met Akeley and safari who made camp near

(183) our old camp a few hours (183) after we had left. On the way back in the long grass of the escarpment saw a herd of 10 elephants, 8 cows and two young. We stalked these and got quite close and K.R. took some snaps of the herd. They wandered about in the open grass country in a close formation occasionally breaking down a thorn bush with their trunks or sniffing the wind for danger. We left them at 11 A.M. in the bright sunshine moving slowly over the flat. Camped near a large swamp at 6500 feet alt.

(183) 15: T.R. went out with Akeley and K.R. and Tarlton for elephant, particularly the herd of cows seen yesterday. They came up with them in the P.M. and T.R. shot 3 cows and K.R. one of the totos. They saw only the common buck during the trip. I set three traps in some ardvark burrows when out of one of these bolted a good sized warthog as we approached

(184) and bolted away in a great hurry accompanied by a rain of 22 bullets from the automatic. Caught two Mus Jacksoni in traps set about trees. Went duck hunting in the swamp and shot 7 ducks of 3 species. An old hippo came out of the swamp last night about 7.30 P.M. and frightened some of our porters who were bringing water from the edge of the swamp. Saw none today and not many tracks in the swamp. 16: T.R. returned from the elephant hunt but brought in no buck. About the elephant kill he heard lions and many hyaenas which laughed much when the lions roared. In the morning they found one of the hyaenas caught in the carcas by the neck. He had eaten his way through the side and forced his head through one

(185) of the intercostal spaces and could not draw his head out again. Caught on the open veldt 2 large Tatera, 1 Arricanthus masaicus, and in the grass near the swamp one Pelomys like those taken at Molo four years ago, and one of the large Crocidura martiensseni. In the late P.M. we drove the swamp for buck with 100 porters but flushed nothing. Caught a black-backed jackal in one of the ardvark burrows. 17: Moved camp to the deep Ravine where the large maned lion was seen on the way out. On the way we saw many kongoni and a few zebra and oribi. Saw a herd of 6 topi with some kongoni. T.R. shot four of them, all of which were cows. Saw one other topi with kongoni. Drove the ravine at noon for lion but flushed (186)

(186) nothing, not even a buck of any kind. During the night I caught only two young Tatera and one black-backed jackal. 18: During the night we were serenaded by many spotted hyaenas at apparently very close quarters. Shot a number of the guinea ~~fowl~~ pigeons in the ravine where they are very common. They alight only in olive or similar trees, never in Acacia or on the ground. Flushed one Abyssinian duiker. Saw a bunch of five of the red ground monkeys at 400 yards. One was very large, twice the size of the other four, evidently an old male with four females. They were all quite rufous on the back and rump with pure white bellies and grayish heads.

(186) Tail as long as on the baboon, a species of which they apparently are.
(187) Later I saw two others at about 800 yards. They seem to live in the rolling scattered brush country and are very watchful and escape by running. At the edge of the brush country I saw a herd of 22 giraffe in which there were 3 old bulls. One of the men found a burrow with a warthog in it. While we were standing some ten feet from the entrance the pig rushed out followed by a half grown young. We dodged about trying to escape while the pig did the same and got away by diving between us after many fierce grunts. The warthogs go in the burrows backward so that they are always seen head on and prepared to defend themselves or rush away
(188) quickly. Flushed two ♂ bohor from patches (188) of reeds in the valleys Saw many kongoni and zebra, a few oribi, several warthogs, 2 jackals but no steinbuck. Saw a large herd of defassa near Sirgoit later with a single old bull and about 6 young bulls and twenty cows. The absence of gazelle, dik-dik, wildebeast and rock reedbuck, impalla and rhino is peculiar and inexplicable. Eland occur but we have not seen any; wild-dog are occasionally seen. A few cheetah have been seen by the party but no servals. T.R. shot a 30 inch defassa but lost him after a long chase. He got away with some five bullets in his abdomen and body. Impy lost his 16 ozen at noon while outspanned for lunch near the camp in ya bibi. They were probably stolen by some Ndorobo or Elgeyo natives and driven
(189) into the hills. (189) 19: Went out with T.R. and a party to drive lions with 100 Nandi warriors and a bunch of Elgeyo natives. Day misty and rainy We drove up a ravine west of the station for about 6 miles but flushed no lions. Saw one hyaena, two cheetahs or leopards and several ♂ reedbuck. Caught two Mus jacksoni, a Lophuromys and a Crocidura martiensseni and a smaller shrew. 20: Went out again for lions this time with the Nandi only and without Hoey and Liggit who returned to Nairobi. Flushed a large male about noon which bounded away about one mile ahead of the beaters. We chased it on horses and one of the boors saw it under a thorn bush where it remained until surrounded. It stood under this bush
(190) lashing with its tail and growling. Finally (190) Scally and Kirk got the Nandi beaters in a circle about it. They then closed in with uplifted spears and shields. When about 10 yards away the lion charged out and at

(190) once received a spear thrust, he then turned and received several more but succeeded in biting one man badly in the forearm and scratching another. When he fell he was filled by spears, at least 30 sticking in him. Several were badly bent and one broken; these were the first ones which took effect. One was thrust through his mouth, through the tip of his tongue and had broken two of the lower premolars. He was a large male, 9 ft. 4 inches long, with a black tipped mane and teeth in perfect condition, probably a lion 5 years old; belly with a layer of fat.
(191) On the way back we saw several steinbuck, two topi, several lots of 5 pigs and two of the red baboons. Kirk says he has seen as many as 20 of these in a single herd. On the way out Corbet shot a ♂ serval which his wife drove out of a patch of grass. Caught in the traps a Thamnomys loringi and another Crocidura martiensseni. 21: Left Sirgoit at 9 A.M. Saw one herd of about 500 to 1000 kongoni and some zebra. Also saw two topi alone. Shot pigeons at Impy's store where we camped. Before leaving Sirgoit Percival and the Rothschild safari came in. Found several ♂ willows in blossom along the stream near camp. K.R. shot a spike buck
(192) bushbuck near camp. (192) 22: Left Impy's store early and went southeast down the river to Corbett's Guas Ngishu boma and camped. Saw rather few kongoni and zebra on the way down. Several steinbuck and many oribi were seen. Elevation of camp 6700 feet. Erythrina trees in blossom on plains streams fringed almost exclusively with Eugenia trees. On the river saw some of the ripe yellow fruit of the Kikuyus. Carlton saw a fine large cheetah. Scally reported lions common and also a rumor about a black leopard. 23: Went out at 10 A.M. with Scally and the porters and beat the swamps near camp for lions. Flushed a fine tawny-maned lion about noon from a large swamp. This old male came out near us immediately after the Colonel had fired a half dozen shots at two ♀ reedbuck. T.R. missed
(193) him and he turned back into the swamp. We (193) fired the swamp partially but he came only to the edge and on seeing the beaters turned back. About six reedbuck were flushed from the swamp before the lion was seen. Evidently they do not mind the society of lions. A ♀ Grimmi duiker was shot by K.R. early in the day. The stomach of this buck was filled with the seeds, fruit and leaves of the large spiny-leaved Solanum. T.R. shot a ♀ Hyaena crocuta as it rushed away from the beaters. This brute

(193) was backbroken but allowed us to take photos at 10 feet offering no resistance. Shot five yellow billed mallards and one francolin. Saw several large white-winged bustards. Caught in the traps two Otomys, several Lophuromys and one Arvicanthus masaicus. The veldt all about here for several miles has been burned off and is now black and a few (194) short green spears of grass appearing. Oribi, however, are common in this burned plain. Many burrows of ant-bears, many quite fresh, were seen today. 24: Went out to the same swamp where the lion was seen yesterday, but nothing could be beat out. About 4 P.M. we began shooting buck on the way back. T.R. shot a record ♂ Oribi, horns 5-3/4 inches; he also shot some kongoni and one topi for food. K.R. shot a bustard, (Otis coffra). This is the red-necked, white-winged one of Laikipia and the Sotik and Duff Valley country. I shot a ♂ bohor with 10 inch horns. 25: Moved camp about 7 miles northeast to some stone bomas. Saw very little game on the way over. Went out at three in the long grass for lions but saw none. Many bohor and oribi were seen in the grass. (195) (195) T.R. shot two young adults with slender, rather straight horns of about 9 inches length. 26: Left the stone boma early and beat up a creek bed but flushed no lions. When nearing camp we saw a topi with the lower part of the face white like a blesbok. T.R. pursued it but did not get a shot at it. Then everyone attempted to get a shot but it bolted and was lost. Scally said that some of the boors had seen this one before and that another was reported from Sirgoit. Struck camp in the old place at the edge of the escarpment where we camped late in the P.M., at 6 O'clock on the way down. 27: Got away early and made camp at noon at the bridge (196) at 8600 feet elevation. Day very (196) windy and misty. No game of any sort seen along the way. In the meadow near camp were many giant lobelias, which I photographed. Caught a large number of mice before dark. The species were Arvicanthus pumilis, Otomys and Lophuromys, both the latter being exceedingly common. In the night I caught both species of the peromyscus-like mouse and the Dendromys insignis. Three of the Otomys and one Lophuromys were badly scalped and eaten by Crocidura, but I failed to catch any of these shrews. Vegetation in forest, juniper, jew and bamboo with gray olive and Hypericum on margin. 28: Camped at the lake at the junction of the Londiana and Ravine Roads at 9000 feet near the

(196) lake. T.R. shot three young roan with 5 inch horns. They were seen to- (197) gether and were all that could be found. K.R. shot a ratel in the bamboos and found the skeleton of a duiker which he brought in complete. I saw 3 waterbuck and shot a few guinea pigeons. We saw nothing along the road today. Caught only a few Otomys in the traps. 29: Started at 8 A.M. in a heavy misty rain and fog which blotted out all the landscape. This continued until about noon when near Kampi Mongoni five miles from Londiana. Saw only two kongoni along the way. All the adult Otomys I have skinned have a hard layer of muscle on the cheeks which forms a pad. This is thicker and denser in old males than in females. 30: Caught during the night two Mus peromyscus and an Otomys which was badly eaten by Crocidura. Saw a mixed herd of topi and kongoni on the way in to the station. No- (198) where have we seen (198) topi alone, although I have seen as many as 18 in one herd of kongoni. Occasionally stray ones have been seen with zebra only. Left the station at 5 P.M. with Carlton for Nairobi where we arrived the next morning early.

December 1: T.R. and K.R. went to Enjoro for a Bongo hunt with Lord Delamere. K.R. went into the Mau Escarpment forest 22 miles south of Enjoro where he shot an adult♀ and a young fawn. T.R. shot several Colobus monkeys. 9: K.R. left for Mombasa with his gun bearers for the village of Momkera, 25 miles south on the coast. Here he hunted sable with the natives and secured an ad. ♀ and young ♂ and a calf. 15: Re- (200) turned to Mombasa. (200) 18: Left Nairobi at noon. Day clear. Reached Naivasha at 5 P.M. Country about Kikuyu Escarpment green. The large leaved Maranya trees were in blossom. K.R. saw a roan just before reaching the lake. Beyond Naivasha we saw many herd of kongoni, thomsoni and a few warthogs. Between Gil-Gil and Elmenteita we saw one large herd of impalla and two herds of zebra. 19: Awoke about Kiligori station. A cool breeze and clear sky made a pleasant trip to the lake. Saw many bustards and hawks along the line but no game. Reached Kisumu at 9.30. Spent 3 hours about the market and lake photographing natives. Voyage on the Clemment Hill was smooth and cloudless. Saw very little life. A few crocodiles near the entrance of Kavirondo Bay. Saw a few Cormorants (201) anchored at the mouth of the bay. 20: Day clear and calm. Passed near

(201) several small islands which were rounded and grass covered, yellow-green in color and with a narrow fringe of trees along the water. (202). 18:

(202) [This page and part of page 203 is duplication of page 200-1].

(203) 20: Reached Entebbe at noon. Rode about the town which was green and quite beautiful compared to Kisumu. Many of the small white Egrets were seen feeding about the cattle and these allowed us to approach and photograph them at 15 feet. At Bertie Smith's curio store I saw rugs made of the Uganda duiker, several Servaline skins and some young Sitatunga, also the large edible rat Thrynomys. 21: Reached Lusinga at 10 A.M. but I remained on the boat until 4 P.M. The ride up the Kampala took an hour.

(204) Most of the way was through ((204) banana groves and Acanthus hedges over a wide road in bright red soil. The Dr. on the way up found a flock of black Cercocebus from which he shot four. They were very bold and came closer and closer as he shot and remained very close while he hunted through the brush for the dead ones. Later he shot a lot of small fruit bats from inside an old house. During the night we had a thunder storm with occasional showers. 22: Went out with T.R., K.R. and Knowles for Sitatunga. We drove a swamp with some hundred natives and flushed two Sitatungas. One of these was shot by K.R. and proved to be a good ♂ with 20 inch horns. Stomach contents of this one was only the leaves and stems of an herb, no grass whatever in the contents. This buck stalked through the reeds much like a bushbuck with head held low and shuffling

(205) gait. (205) During the day J.A.L. caught several brown median-sized Crocidura, one Arvicanthus neumanni and one A. masaicus. Altitude of Kampala by T.R. barometer 4000 feet. 23: Left Kampala at noon in Rickshaws with the Dr. and J.A.L. T.R.,& K.R. stopped with Knowles to beat out a patch of brush where two leopards had been seen. Saw only a few birds and a small lizard along the road. The way was slightly rolling over a wide road of red soil. Most of the way was through banana groves but near camp, which was ten miles out, it was mostly elephant grass country. Our camp was newly constructed of elephant grass stems which had the appearance of bamboo. A tall fence enclosed several houses of cane and space enough for all the tents.andaw a few Erythrina trees in

(206) blossom, these were all leafless, those in leaf being flowerless. A telegraph line skirted the road, the poles of which were growing like

(206) willow posts. Saw much triumfetta in blossom. The cultivated vegetation was largely sweet potatoes, yams, cotton and a few cassava fields with Papadga trees along the road. 24: Rained very hard during the night. J.A.L. caught about 15 small mammals, one fairly large Crocidura, one Satera, 2 species of Leggada and Mus hildegardae. None of these were like those taken at Kampala where only Lophuromys and Thamnomys were taken. Shot a small squirrel with two light stripes bordered by black ones. Saw only a few wagtails and doves along the road and the tracks of two species of mungoose or civet. Most of the country passed through was

(207) covered by the tall (207) elephant grass; saw a few Erythrina and fig trees and in the hollows many date-like palms with tall slender trunks. Our camp was 12 miles away and built precisely like the last of elephant grass. The houses and fence were decorated with Erythrina, cockscomb and purple asters. Rained very hard about 3 P.M. and cleared about sunset. T.R. and K.R. came in during the rain and reported no leopard or evidence of any on yesterdays beat at Kampala. 25: Caught several Mus peromyscus in the woods and two Leggadas and a crocidura. Shot a ♂ Cercopithecus ascanius schmidti, the only one I seen. Nothing secured or touched the meat used on the five steel traps I set. A few miles out of camp I shot a grey parrot. Later near camp I shot a screech owl. Vegetation somewhat more varied than yesterday. Saw a few of the --- trees in

(208) bloom, also a few small sunflowers and Dombeyae bushes. K.R. went out for defassa. He saw a herd of several and shot one young adult ♂ with horns about 25 inches. 26: Caught a ♀ Genetta and one Mus endorobus. Made camp at 1 P.M. at Kabula Meliro. T.R. went out for kongoni and returned without seeing any. He shot a large male bushbuck which was red and spotted like the females shot in East Africa. It was a large bodied and apparently allied to T. dama of Mavirondo. The road today was largely through swamp without any patches of dense forest. The commonest tree was a large thorn tree with yellowish-green foliage. Candelabra euphorbias were also common on the high rocky hills near camp. 27: Caught only a few Mus hildebranti. Loring caught several Lophuromys, Mus pero-

(209) myscus and Mus helukus. K.R. went (209) out early for buck and returned with a ♀ bushbuck and a ♂ bohor. Later in the PM. at the new camp at

(209) Katwe T.R. shot 3 bohor and K.R. shot a spike ♂ bushbuck and a fine old ♂ Bubalis insignis. This one lacked any dorsal black stripe but had the legs intensely black from the hocks to the knees down, the chin black with a weak black chevrons on the face. Horns and head shaped exactly as in Jacksoni. He saw only one other. A dairyman living near Kabula Mliro said he saw them often along the Maanja River. T.R. saw a herd of waterbuck on the way to camp. Vegetation chiefly candelabra euphorbias, with clusters of yellow fruit on the apex and thorn trees. Grass about two foot high but no elephant seen anywhere along the route although the (210) camp was constructed of it as usual. (210) 28: Went as far as Kisinga which was 16 miles journey. Day rainy in the early morning but at noon it cleared and remained open. Most of the way was through scattered brush and fairly short grass country without hills or heavy papyrus swamps. Vegetation chiefly the brown barked thorn tree and the borassus palm. None of the wild date, Phoenix reclinata, palms so common during the first three days were seen anywhere. Many magnificent dom palms with large clusters of yellow fruit were seen. After arriving at camp T.R. & K.R. went out for elephant under guidance of a native who said there were some near by. T.R. shot a male with 50 lb. tusks and saw one other. 29: Remained in camp and skinned the feet and ears of the elephant. The ears were identical in measurement to those taken at Mt. Kenia. The next to the last molars were in use, the last ones just coming through the gums. (211) There were no marked (211) ridge on the back but on each side of the middle were a patch offoot square of very rough tubercles of skin. The second molar had nine enamel folds instead of eight. Stomach contents were the pods and seeds of a large bean from a tree very similar to the Erythrina which was everywhere in fruit but none in flower. This old elephant was the only one seen of a herd of 4 and charged as soon as it saw the hunters, T.R. and K.R. In the A.M. K.R. went out for elephant but saw only a herd of kongoni, two females of which he shot. One of these had black cheek patches and a black dorsal neck line which the other lacked, although it was much older. 30: Made another 15 mile march to Kigoma. Saw no mammals on the way. The tracks of a lion were well impressed in the mud of the road for some five miles. In one place the

(212) lion tracks were well impressed on the top of one of the ant hills. T.R. went out from the camp after we arrived and shot one old ♂ kongoni. This one had little black on it being without the black cheek patch, sevrons and dorsal neck streak. The vegetation was chiefly acacias, euphorbias and mangroves. A few erythrina, palms, and some of the elephant beans were seen. Several bushes of the edible Carrisa bush were seen along the road. Red-headed lizards quite common in the termite nests and trees along the way. 31: Made a short march of 8 miles to Yailo. Country very nearly level and with few scattered trees. Thorn tree, elephant bean tree and Erythrina common. Most of the country was short grass with elephant grass only in the ravines as yesterday. No game seen along the (213) way. T.R. and K.R. went out from camp but saw nothing, (213) except a Uganda duiker and some buffalo tracks.

January 1: Left at daylight and made a long march of 20 miles to Kigoma. Country fairly level and dry with only a few small marshes and hills, covered by small scattered trees and grass waist high with elephant grass in the marshes. Trees chiefly the greenish Acacia, candelabra euphorbia, Eruthrina, elephant bean and Mangrove. Near Kigoma the country changed to forest with many vines and bushes. In this were many purple acanthus and some of the red thistle-like plants so common on the Guas Ngishu Plateau. No Borassus palms seen but near Kigoma a fair lot of Phornix of small size. Very few banana or other shamba seen. Tracks of a large leopard seen for a mile or so along the road and many tracks of (214) duiker and mungooses. (214) Saw several Kigelia trees in one spot on the road. J.A.L. caught another species of Lohpuromys with softer hair and a long tail. Along the whole route no burrows or burrowing animals have been taken except Tatera, but the burrows of this mouse were not apparent. Dr. M. saw an Xerus along the road near Kisinga and wounded it but it finally escaped. 2: Caught nothing in the steel traps. Arrived at Hoima. On the way shot a lizard, a young varanus and a few mouse birds. Vegetation chiefly thorn trees, date palms, Erythrina and papyrus swamp. The region above Hoima is very hilly with scattered banana groves and patches of elephant grass. 3: Remained in Hoima and packed up the skins collected on the way. Weather very cool with distinctly cool nights and

(215) few mosquitos. 4: Left Hoima at 10 A.M. and made camp on the Butiaba road some 14 miles out at Kajwra. Country chiefly heavy elephant grass like the region near Kampala with trees and streams in the ravines. Man y date palms, erythrina and Spathodea trees seen. The telegraph poles were in leaf as usual and are said to be the bark-cloth tree. Much of the undergrowth was the Acanthus and Triumfetta. A fine leaved Acacia with immense very flat thin pods was common along the route. 5: Caught nothing in the traps. Left very early and arrived at Butiaba at noon. Country to the edge of the escarpment was chiefly the triangular fruited trees, Acacia, etc., but no live telegraph poles, and only a few date palms. Grass chiefly low with little elephant grass except near Kajwra. Below
(216) the escarpment was a five mile flat well covered with brush and (216) trees and very level with black soil apparently at one time the lake bed. Trees here chiefly candelabra euphorbias, thorn trees with many aloes and sansevieria beneath the bushes, also some climbing euphorbias. Near the lake shore was much grass and a papyrus swamp. A cool breeze blew from the south in the late P.M. a thunder shower blew up from the escarpment. Lake beach grassy and steep with waves two feet high breaking close in shore. A few borassas palms near the beach, the first seen since leaving the Kafu River. Along the Waki River near the escarpment I photographed some clumps of screw pines, the first I have seen. Saw considerable rabbit dung along the road, the first noted in Uganda. Tracks of defassa
(217) seen near Waki River. All along the road (217) I noted the yellow fruited shrubby Solanum so common through B.E.A. 6: Caught only one Crocidura during the night. J.A.L. trapped Mus helukus, two Crocidura, one large Mus and a Gerbil. Went out shooting with T.R. in the lake on a large boat for crocodiles. Saw only the back of one. The shore of Butiaba Bay is very sandy and low with a fringe of Ambatch trees along the shore backed up in the wetter parts by tulos and a flat-bladed reed like cattails but standing 7 feet or so above the water. Saw a large monitor lizard about 6 feet long at which T.R. shot but it got away. I shot several sorts of birds, the rusty crowned egret which associates with cattle, a white heron, a snake bird, several spur-winged plovers, a stilt, a lily-trotter. We saw many cormorants and several of the white-headed

(218) fish eagles. Perch were seen jumping everywhere. About the edge of the lake in the dry sand a very stiff pointed leaved, many jointed grass grows abundantly which pricks through your clothing as you walk through it. Day very windy with a heavy south wind and considerable sea on the lake. Sky overcast obscuring the Congo mountains and west shore of the lake. Thunder shower in the distance. At midnight we had a heavy shower for about one hours duration. K.R. went out toward the escarpment and shot a Grime's Duiker. He also saw a herd of 9 Cobus cob. Set some traps in a patch of wire grass where I caught a Dendromys which had a dorsal black stripe and prominent white marks about the ears; caught also two medium sized Crocidura and a leggada. In places there were runways in which bits
(219) of the cut grass was seen like the work of an Otomys. (219). 7: Left Butiaba at 10 A.M. Weather overcast with a strong head wind from the north. Took passage with Dr. M. and J.A.L. on the sail boat James Martin. The launch Kenia towed us for the first three hours while the headwind lasted. Finally the wind shifted to a fair breeze and we hoisted sail, on the James Martin and towed the two smaller boats. About four we picked up the Kisingiu and finally made Koba at 10 P.M. in the dark. The west shore of Lake Albert was very steep and rather thinly covered with small bushes or trees. A few patches of heavy forest was seen near the shore. The kongo hills rose in several tiers apparently to a height of some 8000 feet. A few gulls and terns were seen on the lake, also a few fish. 8: Steamed all night on the Nile and made Wadelai at noon. Nile very much the
(220) same throughout its course. Banks low on the east side and papyrus swamps. West bank hilly with scattered thorn trees and grass. No native villages seen but a few canoe men were seen. Quite a number of the candelabra euphorbias. Saw several hippos but most of them very shy. Only a few huts were to be seen at Wadelai inhabited by a few naked natives. Country rolling and grassy with a few Acacias. Below Wadelai both banks were covered heavily by large areas of papyrus through which the river made many channels. Saw only two hippos and a single crocodile. The crock was about 10 feet long and lay high up on a bank in one of the back channels. When it saw the flotilla it turned very rapidly and dashed into the water. The birds seen along the Nile were chiefly the snake birds, blue herons,

(220) ajax, white headed fish eagles, cattle egret and black and white king-
(221) fishers. A troup of (221) a dozen baboons were seen on a hill, some on the ground and others in trees to get a better view. At four we stopped at a large Bari village to get wood and allow the porters to cook their food. Here the Dr. shot an eagle owl. The Bari here lived in villages with a light stockade about and about a dozen houses and many graineries inside. The women wore only an apron and a long tail behind like the Maivorondo. They do much fishing with a large wicker trap. Many of these were seen set about the nile, the spot being marked by a line of stakes projecting into the river. These traps were about 4 feet high by 3 in diameter and in shape or section Their food consists also of grains, ----- chiefly, but no bananas or sweet potatoes are used. They are said to feed on game also. Goats were the only domestic
(222) stock as in Uganda sheep and cattle apparently not able to live near the Nile. Several Ndorobo-like dogs were seen in the village. Steamed into the night and anchored in Hippo Bay at 9 P.M. 9: Went ashore and made camp at 9 A.M.; the earlymorning being very foggy. The country about the baoy was rolling slightly and covered with the brown barked acacia and Kigelia trees with grass a few feet high everywhere. No palms seen along the Nile. Altitude of Hippo Bay 2200 feet; temperature 96° in the shade at 3 P.M. 10: Went out early with R.J.G. a few minutes after T.R. and party had started for the white rhino country. We found the grass everywhere 10 feet high and dry so we lost both the party and their trail. We found
(223) quite a number of rhino tracks and trails and finally (223) found a large toto and its mother but they bolted at once and we only saw her back in the grass. Oribi sign was everywhere in the bared spots about anthills, the droppings being as usual in a little heap. Saw four Oribi, also two bushbuck and two dark red duikers and five defassa, two solitary males and a herd of three females. Saw hippo tracks and dung everywhere near the nile and during the night we heard them bellowing throughout the whole night. T.R. and K.R. found a herd of 4 rhino west of the camp and killed a female and a small calf, the male escaped wounded and the other one got away without any damages. The female was not any larger than the black species with a front horn of 24 inches and a very short rear horn. The

(223) stomach contents was solely grass. The male that was wounded was found a week later, under the guidance of vultures, and the skull and horns preserved. Trees were chiefly the acacia, the Combretum and a bean-
(224) bearing tree with long ellypitical leaves. Saw another species of Kigelia with long slender fruit and flower in pendulous vine like clusters. Saw a few of the candelabra euphorbias below camp. Loring caught several Arvicanthus barbarus, a Tatera, a large Lophuromys, three species of Crocidura and two Mus. 11: Remained at the rhino skins and finished paring them. Heard no carnivores during the night. Trees about camp festooned with brown vultures, kites and Marabou storks. T.R. said today there were five rhino together when he shot but none were undoubted males, although it is very probable there was one. Hair on the tip of the tails is quite soft and not stiff like in the black species. The old female is no larger than a large ♀ black rhino but she has a distinct high hump.
(225) 12: At 2 A.M. 2 lions came into camp and began feeding on the viscera of the rhino within 15 feet of the skinners tent. We were soon awakened by their growling and the skinners left their tent and came over to build a fire near the cook tent. We lit two lanterns and made much noise and talked loudly getting guns and the acetylene light loaded but it had no effect on the lions who kept on feeding. When the acetylene light got under way they left the camp and moved into the grass. The skinners attempted to go back to their tent but several growls warned them away again. At 4.30 they returned again and remained at some short distance growling until daylight. The skinners in the morning thought by the
(226) tracks on the burnt grass that there were three lions. (226) Heard no Hyaenas or leopard during the night. Covered the new burn on the way back to camp. Here we saw several herds of 10-15 cob, 1 common duiker, 1 Oribi two defassa besides several large ground hornbills, 1 greater and one black bellied bustard. Saw several fresh tracks of rhino on the burn. 13: Went out early with T.R. for rhino. We found three about 9 A.M. not far from where the first two were shot. T.R. shot the largest, a male with very short horns, a ♀ escaped and a large young one came back to the ♂ but when we shouted it bolted. The one shot was 12 feet long about the size of a large black rhino. On its neck was a prominent hump which was fleshy

(226) and not supported by processes from the vertebrae. Stomach contents
(227) grass solely. This species (227) scatters its dung along its trail and does not have the habit of the black one of depositing it in a pile which is what the white rhino of South Africa is said to do also. Height of this one 5 ft. 3. Apparently this is a much smaller form than the S. African. Saw several cob and a defassa. T.R. shot a ♂ defassa on the way to camp with 30 inch horns. R.J.C. and I made camp where the rhino fell. 14: Remained at the skin paring it down. During the evening we heard a few hyaenas near camp but they did not come as close as the traps set some 50 yards away. Heard the lions at long distance roaring. Several Washenzi came in from an elephant camp they had some two miles away
(228) where they had speared an old ♀ elephant with rather small tusks. 15: Caught an old male leopard in the night in one of the steel traps. He was caught by a single toe in a weak springed trap with a light twig drag but he went only a half mile with it during the night. When seen he was dragging it at a fair rate through the burnt grass but when approached to 50 yards he turned about growling and came toward us. I then shot him in the shoulder and he dropped in his tracks. R.J.C. says that on the plain above Mahaaje on the northwest shore of Lake Albert he has seen good sized herds of giraffe when elephant hunting there. What race this can be is difficult to figure out until specimens are procured. Cotton
(229) is far away on the Nile side half way to Lake Rudolph and the Sudan form is in Kordofan in very different sort of country, [Powell-Cotton says they do not occur here but are found at Lado]. 16: Remained in camp looking over the buck shot by T.R. consisting of two defassa, 2 cob and three Oribi. He also saw a few kongoni but they were so shy that a shot was not obtained. T.R. went out for white rhino. He found two about 10 A.M. and shot the ♀ which ran away wounded but was recovered afterward. She had very small stubby horns like the ♂ shot several days ago. Later on one of the men located a ♂ which he shot. This one had a somewhat larger body then the first ♂ with a horn of 25 inches with a very
(230) heavy base. R.J.C. and myself went out at sundown and camped (230) near the kill which was very near to the place where the first two were shot. Set out the large steel traps but nothing came around during the night.

(230) 17: Remained at the camp skinning the rhino. R.J.C. shot a ♂ Cephalophus grimmi. I saw one other yesterday but they are not common here. R.J.C. saw two red duikers yesterday while out with T.R. He described them as slightly higher than the common duiker.shot today. Picked up an adult rhino skull in good condition near camp. The entire skeleton was scattered about near the head. 18: Caught nothing in the steel traps.
(231) Heard the lions grunting at about a half mile during the night but they did not come into get any of the meat. Returned to the permanent camp in the afternoon. Shot two Oribi on the way over. Saw a herd of 6 male kob but the old ones had no black on the shoulders, not even so much as the Uganda kob. Saw a well horned black bushbuck but could not get a shot at it. It appeared very dark brown without any prominent spots and much like masaicus of B.E.A. T.R. and K.R. sent in two ♂ kongoni with black legs like insignis but much lighter in color and without the black face blaze. 19: T.R. and K.R. went out to photo rhino and shot a ♀ which charged them about 5 miles from camp. I went out from camp at noon to
(232) skin the brute. She had a 25 inch horn and was about the size (232) of the first ♀. She contained a large foetus with well formed hoofs which we preserved. On the way out saw a herd of 4 defassa, 1 common duiker, 3 kob, a herd of 10 kongoni and two single ones and two oribi. K.R. and Grogan saw a large ♂ warthog, the only one which has been seen thus far. 20: Remained in camp skinning the rhino. Shot a large immature vulture. Saw several others but they are much less common than the smaller Neophrons. Caught nothing in the steel traps. Grogan and K.R. came in late from a rhino photo hunt and remained all night. They saw no rhino and only a few buck but they met a herd of 8 warthogs. According to the description of simus in Slater's S. Af. Mams. the tail is covered with bristles rather
(233) than hair and no mention is made of the hump on (233) the neck which is a prominent fleshy prominence in all those taken by T.R. The skull of T.R's is also larger measuring about 31 & 32 inches in length. Selons mentions the hump as the best meat on the animal but does not otherwise describe it. 21: Grogan and K.R. found a ♀ rhino and large calf which they photographed successfully. Finally the ♀ charged and was shot. She had a 30 inch horn with the slender forward bend of typical white rhinos.

(233) The head was brought in whole and photographed. I retained to the main camp picking up on the way the large ♂ rhino shot on the 10th by K.R. who today discovered the remains. Shot a large vulture with a spread (234) of 9 feet which is apparently Lophogyps. Saw (234) saddle-billed storks near a small pond but could not get a good shot at them. Saw several defassa, many kob, one kongoni and two duikers, one of which appeared quite dark reddish on the back. 22: Remained in camp preparing for the trip to the lake, two days march inland, near Sururu village. The doctor sent in a spike buck Tragelophus which had the cross bars very distinct. 23: Left camp with T.R., K.R. and R.J.C. and Grogan for Sururu village where we arrived at noon. Country fairly flat and recently burnt with occasional shambas of matama? Saw only a few kob and oribi and Hartebeest. Some some bustards and one Spaizietes? but no ground hornbills. Country (235) chiefly covered with scattered thorn (235) trees, Kigelia, Euphorbias and Lonchocarpus. 24: Left the village early and moved over to the lake which was only an hour away. Saw no game on the way over but when we arrived at the lake T.R. shot two young waterbuck and saw a herd of four cow elephants. We also saw a fresh lion kill of a warthog on the shore of the lake. Everyone went out in the P.M. for game but nothing was seen. The lake is a large pond dotted everywhere with blue waterlilies and supporting many Jacams and great knob-billed geese, pellicans and water birds generally. 25: A slight fever took possession of me so I remained in camp. During the night we herd Hyaenas near and early in the morning (236) the roaring of a lion. (236) T.R. went out north of the camp where they met during the day 9 square-nosed rhino, one bunch of which had four. They saw no elephant or buffalo and only one buck, a duiker, which T.R. shot. K.R. and R.J.C. had similar experiences but saw no rhino. 26: Heard a lion during the night for several hours about a mile away. Returned in the early morning to Sururu village. Everyone went out along the swamp for buffalo but no game was seen. I shenzi reported seeing two buffalo near his shamba in the morning. 27: K.R. reported seeing unmistakable zebra dung near the lily pond but as Grogan had never seen or knew of zebra on this side of the river it was probably mule dung. K.R. and R.J.C. went out north of camp where they saw ten white (237) rhino

(237) and several warthog. In one herd they saw 5 rhino. When frightened they all curled their tails and bolted. Congo forest species of large game show a strong tendency to a bright rufous pelage as the bush-pig, bush cow, Derby Eland, harnessed antelope and others. Collected some of the large elephant beans near the village and some of the flowers and date-like fruit of a spiny branched tree which grows to a large size and is wide spread here. These hard stoned fruits are used for fermenting a native beer by the alcohol. T.R. remained in camp and when news of a buffalo was brought in at noon he went out with Grogan and shot the animal in some tall grass. It was an old bull with the horn points and boss over the forehead badly worn away. It was a typical White Nile aequinoctialis with short horns with little arch to them and extended (238) backward (238) at a sharp angle rather than downward. The whole skin of this brute was kept. The skin of the belly was very thick, as thick as that of the neck. Body well haired with black hair. R.J.C. and K.R. saw no elephant or buffalo. 28: Remained in camp paring down the buffalo with R.J.C. The rest of the party returned to the main camp. In the afternoon we discovered by some Belgian askoris who surrounded our tent with their fingers full of cartridges and asked a few impertanent questions. They returned later with their officer a whiskered Belgian who asked a few questions and then returned to his camp. T.R. shot a ♀ Rhino with a 25 inch horn on the way in to the main camp. 29: Returned early to the (239) main camp. Shot on the (239) way a ♀ Ground Hornbill and one of the bla ck crested eagles. Saw several herd of Kongoni, one of waterbuck and several pairs of Oribi. 30: Remained in camp tagging up skulls and skins. Grogan says black rhino are reported abundant at the mouth of the Jokka River a few miles below our camp on the east bank. They are also said to occur near Gondokoro. 31: K.R. sent in an adult ♂ bushbuck which was quite light brown with fairly well marked white cross bars. He also sent in a male colobus with only the tip of the tail white and with the white mantle of the sides very short and then.

February 1: T.R. & K.R. went up the river hippo hunting in the large boat. The Megaderma bats have never been molested about camp and are still (240) abundant in the thorn trees. Every evening while the light is still good

(240) (but after sunset) they can be seen catching insects. Their method is to sally out from their perch when they see one pass and flit about after it until they catch it when they return to their old perch and masticate it before flying out after another. During the night a short shower of rain visited camp, the first we have had on the nile. In the morning a herd of some 50 elephants were seen from camp on the edge of the marsh about two miles from camp. T.R. & K.R. went over to inspect them after breakfast. The herd apparently got their wind for they were seen to all left their trunks upright at the same time and hold them for a few minutes. Afterward they moved a little way into the swamp. Finally they were
(241) frightened and stampeded for the hills raising as they went a heavy cloud of dust. The herd was accompanied by a large flock of cow-egrets which kept alighting on their backs at intervals as they moved away. The herd consisted of cows and young with a few half grown bulls. 2: Temperature this morning at sunrise in the tent was 72°F. At midday it is usually 98°, very seldom one hundred. Yesterday T.R. brought in a young ♀ bush-buck. The stripes were no more distinct than on the old adults. Stomach contents twigs, pods and leaves of acacia and no grass. 3: Left the Rhino Camp at 10 A.M. with the entire fleet. Saw quite a number of Hippo but only a single crocodile. The commonest birds were the Snake Boiters, ajax heron and Fish Eagles. A fair growth of thorn trees extended along
(242) both sides, that on the east (242) bank the heavier. The James Martin in which we sailed drew more water than any of the other boats and got stuck twice on sandbars while the Kenia was towing her. When this occured the Kisingori which we were towing rammed her bowsprit through the iron awning of one boat but did little damage. Continued under steam all night. 4: About 4 A.M. we landed on a rock and it was sometime before the Kenia could tow us off. Arrived at Nimule about 10 A.M. The west side a few miles above Nimule has several very high bold peaks about 400-5000 feet high but they were very thinly wooded and showed rocky and barren. The country about Nimule was very dary and barren with very few trees and suffering from a recent burn. 5: Went down to the lower rapids this morning
(243) and (243) took some photos. One of the branches of the Nile here dashed through a gorge or rather through a trough of sandstone some half mile

(243) long by 40 yards wide with sloping sides ten feet or so above the water. Here it rushes through making a heavy roar but no great waves. At the upper end of this a falls or rapids some 10 feet high occur and below the trough is a large whirl pool and thhn another wider trough starts with more rapids. The sandstone here is all vertically bedded, the trough being cut parallel with the clevage or statification. Several fishing huts were erected here by the natives. On the rocks near the pool I saw several small flocks of Egyptian Geese. At the base of the whirlpool a number of native women were wading about gathering in the giant duckweed
(244) floating and carrying it out on the bank and drying it. (244) Two lizards were quite common, the orange headed Agavia? and the Euneces like one. Acacias were common, also the purple flowered pea tree and a few of the thorny date-fruited trees. A few borassas palms were also seen. No antelope or any tracks were seen. Rock formation chiefly a grayish and black streaked sandstone and a reddish feldspar and some quartz. 6: Put in a few hours about the old stone fort ruins near the Nile. J.A.L. caught several long-tailed Acomys and Mus and a smallform but no other mammals. He trapped about the rocky hill south of the station where he saw baboons, one common duiker and two red duikers. He also saw two Xerus on the rocks and later shot three rock hyrax. T.R. went down to the falls but saw no game. I shot a Megaderma, the only one seen. Dr. saw a ♀
(245) bushbuck and two Xerus. (245) 7: Left Nimule at 7.30 A.M. and arrived at the Assua River at noon. A fair growth of small trees lined the road the whole way through the hills. Most of the trees were small white flowered Acacias and the four winged fruited tree so common through Uganda. Saw also the blue-flowered pea tree and the elephant bean with Kigelias occasionally. At the Assua River a few larger trees occured with bunches of Borassus palms. T.R. who lead the way saw a few Oribi. The river was chiefly wet sand with a small stream in the middle. 8: Left the Assua River early and arrived at the next camp Kerefi at 10.30 A.M. Country very dry and rocky; no streams passed. Much iron stained quartz everywhere in the soil. Country covered with small trees and grass like that passed
(248) through yesterday. Besides the trees noted yesterday (248) I saw a few small candelabra euphorbias. The Nyiri Hills just across the Nile loomed

(248) up very high and precipitous with a small fringe of forest on their sharp ridges. Height probably about 6000 feet. Caught during the night many Mus hildebrandti and one Tatera. In the road today were many mungos tracks. Saw also a few rabbit pills. No buck were seen by anyone in the party. Along nearly all the dry creek beds were clumps of dry bamboo about 15 feet high and one or two inches in diameter. 9: Made a march of 8 miles to a camp near the Lembeki River. Country about as yesterday as regards botany and fauna. Last night I caught 3 narrow stiped Arvicanthus only. J.A.L. put out steel traps but caught nothing although many mungos tracks were seen on the roads. Went out with the head light for a few (249) hours but saw nothing. (249) The Dr. found 4 burrows of a mole rat and J.A.L. found one in which he set a trap but the animal did not disturb it. Saw no mounds along the road today. No buck seen but pills common, also considerable black rhino sign. 10: Safari started at 3.30 A.M. but J.A.L. and myself remained until daylight and picked up our traps. Caught 3 large Tatera and one Mus hildebrandti. Saw along the road several dozen old mounds of a mole rat but could find none whatever in the native sham bas. No buck were seen along the road. A march of 11 miles was made through a flat level country with smaller trees than previously. The predominating tree is Terminalia macroptera. Passed a few streams with dry beds with (250) a few pools dug in the wet sand. [Una Camp]. (250) 11: Got away early and made the 12 miles to the next camp at Nyouri Jordin in four hours. Country level with good soil and very few rocks; country less bushy. Trees chiefly thorn trees. A few of the thorny date-fruited trees seen. K.R. sent out to a saddle hill two hours out of camp yesterday. He saw a herd of four elephant but no buck. He shot one stree squirrel similar in color to F. jacksoni of B.E.A. The Dr. found a few forest buffalo tracks Examined the extensive shambas about the village for mole rat burrows but found none. Saw no buck along the route. 12: Remained all day in camp to rest the safari. T.R. and K.R. went out for buck in different directions. T.R. shot two ♂ reedbucks, one ♀ Oribi and a red ♂ baboon like the species (251) seen on the Guas Ngisha Plateau. (251) He saw a party of 5-6 of these baboons which kept to the ground like baboons. He saw also several kongoni which were reddish like jacksoni of B.E.A. and very different from the pale

(251) short horned ones of Rhino camp. The Reedbuck are very light colored as is also the oribi. It is apparent that the Nile is considered a barrier to the game as instanced by the white rhino on the west bank of the river and the black ones on the whe east. The Hartebeest are apparently different as are also the oribi. Caught today a Lohpuromys, 3 species of Mus, one Arvicanthus and one Tatera. One of the porters brought in a newly born reedbuck, ram. Oribi sign was seen everywhere. K.R. shot two Roan from a herd of 15 and a ♀ bushbuck like those from rhino camp. 13: Made a march of 8 miles today. Saw only a few oribi. Caught only one Mus in the traps. (252) T.R. went out from camp (252) for buck but saw only one kongoni and several oribi.[Lok ko Legga Camp]. 14: Camped at Ledgus at 9.30 A.M. It is situated on a slight rise among several rocky hills with several villages close by. Set traps in the rocks among the hills and caught several Acomys, Arvicanthus nairobae, A. neumanni, Leggada and Mus hildebrandti, one Tatera and a medium Crocidura. One Hyrax was seen on the rocks. K.R. shot a ♂ kongoni which resembles jacksoni and horn development very close and is very distinct from the pale colored, small horned ones shot at rhino camp. He saw a herd of six. Roan were reported by one of the head men who saw them on the way. We saw a few oribi on the march. One of the common trees was Butyrospermum parkii. This bears a large edible green fruit which the (253) natives eat but they are very tart. (253) 15: Made a long march of 6 hours to Nyonki Kiribia on the Nile a little south of the Kit River. T.R. shot a ♂ kongoni on the way from a small herd. No other buck were seen. The Dr. saw a rabbit. Much elephant sign was seen. this is, dung and many broken thorn trees, some 10 inches in diameter were broken square off. Considerable Rhino scraping was seen under some of the bushes. Several clumps of a new palm were seen and a small branching blue fanplam or dorn palm. Hedemia abiadensis reported from White Nile. 16: A report yesterday of elephants was brought in by the chief so we remained in camp all day to wait for information from the scouts. Shot bats during the evening and got two two very small Pipistrellus. The red baboon-like monly shot by T.R. (254) some four days ago is apparently Erthrocebus potas pyrrhonotus but it does agree with the description, the naked part of the face being black rather than white and the feet being blackish instead of white. The porters

(254) killed two rabbits with sticks near camp. 17: Last evening J.A.L. and I shot bats at camp. We got two species of small Pipistrellus. These were not seen until we reached the dom palm belt and it is probable that they live in the masses of dead leaves in the crowns of these palms. Left camp at 4 A.M. and arrived at Gondokoro at 8.30 A.M. About one hour before reaching Gondokoro we saw a herd of about 30 elephants feeing in the tall elephant grass near the Nile. They were only about a half mile off the (255) track but they took no notice of the (255) safari or the shouting of the porters. We saw no buck but the Dr. who was ahead, saw waterbuck and cob. Clumps of dom palm were very common along the way and together with the Acacias they made up most of the tree growth. We marched into Gondoroko headed by Chief Kiribie and his band of two drums and two buglers who kept up a monotonous din. 18: T.R. & K.R. left at noon for Rejaf to hunt the giant Eland which are said to be two days inland. 19-25: Remained in Gondokoro sick part of the time and prevented from going to Rejaf with T.R. & K.R. Loring set small traps about the Gondokoro station where he caught many Arvicanthus neumanni, A zebra, Mus hildebrandti. Bats were very (256) numerous in the houses. Many Nycteromus hindei (256) lived under the roof of the house we lived in. In Haddons house were many Nycteris thebaica of two sorts of coloration, the commonest the ordinary gray and the other a bright orange rufous. The Megaderma was common. A few large eared Hipposiderus were taken but none of the small Pipistrellus which were so common at Kiriba. Some Tatera were also trapped. 25: Left with Dr. Rabinovitch for a small lake ½ miles east of Gondokoro on the Mongalla Road. On the way out we saw a large herd of defassa and when we arrived many kongoni and tiang were in the meadow near the lake. We at once stalked these but could only get near the hartebeest, three of which we shot. These were all very light yellowish with rather wide spread horns and were exactly like those from Rhino camp, which I thought were new. One or two red individuals were (257) seen in this herd of about 40. Rained at noon for an hour. In the P.M. we went out for a hunt but found nothing in the brush. On coming back to the meadow we saw a herd of 4 roan with a few hartebeest. The Dr. shot a ♀ roan and we cut off the head. I set the two steel traps at the body of the animal but caught nothing during the night. About our camp was a large

(257) tamarind tree with ripe pods. 26: Heard lion roar during the night but they did not come near camp. Saw only a single Tiang in the meadow. The Dr. shot one ♀ kongoni. Saw one patas monkey on the meadow. 27: Caught a large ♂ leopard and a ♀ Serval in the steel traps at the roan carcass. The serval had been killed by the leopard by bites in the chest and shoulder it apparently having been caught first. This leopard when approached (258) made efforts to escape only and did not face us. (258) At 10 A.M. a herd of 5 roan came down to the lake and we stalked them and shot two largest which proved to be females. At 4 P.M. we left with the safari for Gondokoro. When our one hour we struck a herd of about 30 roan on the road. We kept straight on our way and the roan moved out only 150 yards from the road. Several large males were in the herd, one of which the Dr. shot. This one had 26 inch horns and the ears were without any tassels. Later I saw a cheetah and several ♀ bushbuck. Near the pond we saw several smallish warthogs and the fresh tracks of several buffalo. I also saw a few oribi. Kob are said not to occur here. Vegetation chiefly dom palms near Gondokoro and acacia scrub and Kigelia near the lake with a few euphorbias. (259) No hyaenas heard. Serval tracks (259) abundant in the road. T.R. & K.R. returned on the 26th from Rejaf. T.R. with a large male eland and K.R. with a large ♂ and ♀ with 41 inch horns. T.R. saw only two eland but K.R. saw two herds of about 15 each. They were very shy however being much hunted by the natives. They feed only on a species of brush, Bulyspermum? the leaves of which KR. preserved. Besides the eland they saw only a few Roan, kongoni, waterbuck, oribi and some giraffe. T.R. shot a roanhead. The eland country is quite thick bush and difficult hunting but only 11 hours in from Rejaf. 28: Left Gondokoro 8 A.M. arrived at Lado at noon and stopped for lunch. At 4 P.M. we landed at Mongalla and spend the spent the hours of daylight watching the bari dance to the beat of two drums. (260) Mongalla is very flat but is a good game country. (260) Within one hour of the station is a herd of zebra, the only ones in the country and on this account they are preserved. Four or five East African eland have been shot here also but they are said to be ragged in pelage and small. This is the only place they are known from west of B.E.A. They are rare here and only a few have been shot. Wild dogs have also been shot here and a few Roths-

(259) child gazelle. J.A.L. and I shot bats, 8 Nyctinomus hindei, the only one besides Megaderma seen at the station, where they live in the buildings. A white rhino was shot opposite the station recently with a 41 inch horn.

(261) Black rhino are rare near the station and are seldom shot. (261) Tamarind common at Gondokoro, at Lake wehre the brown beans were gathered by the porters. Cakes of the glutinous pulp were common in the boat. Natives used it as a cooling drink and also as a purgative. Thorn tree with date-like fruit, used by natives for beverage. Wood used largley by steamers for fuel. (262)

(262) March 1: Left Mongalla at sunrise and arrived at Bor at dusk where we remained all night. Saw little bird life or mammals on the Nile. I saw a single old ♂ elephant about 300 yards from the bank and a herd of defassa. Country low with a scattered growth of scrub. At one of the wood stations I saw a recently killed buffalo head which was the same type as the one shot at Rhino camp. A boy captured four Hippesiderus from the wood-pile. 2: Arrived at Chaba Shambe at sunset and took on wood. Shot two Hipposiderus and two Megaderma. On the way down the river saw many hippo chiefly parties of 4-8. At one point we saw a herd of about 12 clustered

(263) together on a bank, some wholly out of water. None of them allowed us to get closer than 100 yards. Saw 3 crocodiles. E.J.C. kept a lookout for elephant all the A.M. but saw nothing. Banks very low, the country covered largely with elephant grass and no scrub of thorn trees near the river. 3: Travelled all night and all day through the ----. Passed Millet Nuer at noon. Land in the form of trees could only be seen in a few places, most of the landscape being heavy fields of papyrus as far as the eye could see. A little grass and some flat rushes made up the margin of the narrow passage through the papyrus. A few ambatch bushes were seen in places. Only a few hippo seen and no crocodiles. Birds few, chiefly white bittens,

(264) small black and white kingfishers and the purple heron and snake bird. 4: Arrived at Lake No at daylight, Country low but no papyrus beds and instead grassy swamps and beds of cattails. At 8 A.M. a herd of 15 Cobus maria were sighted and T.R. soon landed and went in pursuit. He shot two males from the herd which were quite adult, the horns being 25-29 inches respectively. They were quite dark but lacked the white patches on the withers.

(264) The females were quite bright foxy red. The hoof of these animals were quite long and bare behind from the false hoofs to the hoof. This is quite a specialization for swamp life much more so than any other Cobus. The herd was quite shy and would not allow a near approach. No other buck

(265) were seen. We returned at 2 P.M. and spent the afternoon shooting at Baliniceps which we saw from the deck about 200 to 300 yards away sitting solitary and exposed on the swamp grass. They apparently do not inhabit reed beds. They were not known to utter any sound. The Dr. went ashore for one finally and shot it as it flew away. The only other buck which has the pastern bare is the lechwe of S. Africa which is about the same size as C. vario but with quite different coloration. 5: Saw a few ♂ Cobus maria this morning in long grass. K.R. went after them and shot a male which had a large white patch on the withers and the whole nape was also white. The age, judging from the teeth, was about the same as the

(266) bucks shot yesterday. Two others were seen and they (266) both showed white napes and shoulders. In the P.M. some white-eared Cob were seen and T.R. went after them. He shot one which proved to be an old ♂ C. vaughani with teeth well worn. All the others seen were red. This one had well haired pasterns which were wholly white well above the false hoofs and the black of the forelegs extended well above the false hoofs. The blackness of the legs has the same extent as C. cobra nigroscapularis but the ears and feet are white and the type locality however is the same as C. vaughani. This one shot today is north of Mezeras, the northern limit of C. vaughani. Spend the whole day at the Bahl, a small tributary of the Ghazal. The whole country seems to be covered with a grass with patches of tall bullrushes

(267) here and there. A few sickly papyrus are found but no beds can (267) be seen anywhere. Why the papyrus does not occur along this part of the Nile or farther north seems unaccountable. The land is chiefly covered by a growth of small flat-topped red-barked Acacias, some of which were preserved: This is Acacia seyal. 6: During the night we steamed into the Bahr-el-Ghazal proper. In the morning several Balenicepa were seen, one of which the Dr. shot. A few defassa were also seen. Capt. Middleton says Mrs. Gray's is not found on the Meraf or farther north then the mouth of the Ghazal but extends up the Ghazal to Wau. Selvé shot some opposite

(267) Mongalla which is the southern limit. It is almost confined to the Bahr-
el-Ghazal, only touching the white nile near Lake No. 7: Steamed down the
Bahr-el-Ghazal. During the morning 7 or 8 Balaeniceps were seen, two of
(268) which were shot, one by (268) T.R. on the wing and another by K.R. on the
wing. All of them were seen sitting exposed and solitary in the short
grass which covers the country where it is marshy. Stomachs of all con-
tained fish bones. Met Salvey who had on board two downy young Balaeniceps
which he had captured during the morning. Arrived at Lake No at 4 P.M.
and sighted Mrs. Gray's Cobs in the same place where the first two were
shot. T.R. went after the herd and shot an old ♀. K.R. went out in a
different direction and shot an old male white-eared Cob. The ♀ maria has
the hoofs bare on the pasterns and the hair whorl beginning in the middle
of the back like the male. I was with T.R. and could hear distinctly at
400 yards the constant grunting of the marias. This noise is very pig-like
and seems to characteristic. It is probably made when they are agitated
(269) but it is quite constant in volume. (269) 8: Ascended the Bahr-el-Ghazal
and returned in the afternoon to the Nile. At 9 A.M. T.R. shot 2 black ♂
Cobus leucotis and one ♀ from a herd of about 25 which were feeding in the
grass on the upland, in hard ground. Several other solitary black males
were seen. The herd was composed of one black male, 4 or 5 immature
yellowish males with rather large horns and females with young. The imma-
ture males in the herd were colored like K.R's of yesterday. One of the
old males had no hair in the posterns of his fore feet and every little on
his hind feet but there was no large space above the false hoofs, and the
hoofs, however, were not elongated as those of C. maria. All of the C.
leucotis however show a tendency to lose the hair on their pasterns. Saw
some oribi and one herd of Giraffe some distance away. The Capt. reported
(270) seeing a few Gazelles. There (270) is no swamp along the Zeref, the ground
being dry and covered with long grass and in places groves of thorn trees.
Stopped at a wood station over night. 9: Left the wood station at 8.30
A.M. T.R. shot a ♀ waterbuck, the only game he could find before leaving.
We all went ashore for two hours but saw no game. Country covered by a
thick tall scrub. Steamed up the Sobat to the American Mission where we
spent the afternoon. The mission is situated on a small rise of 25 feet,
known as Deliet Hill, the only rise above the surrounding level country for

(270) many miles. The mission is in a beautiful grove of largeeborassus palms,
the surrounding country being a flat grassy plain of heavy black soil.
The only game which occurs in the neighborhood known to the missionaries
(271) were Red-fronted Gazelles, (271) Tiang and Waterbuck. The skilluks to the
number of 100 men gave a dance in the afternoon. They are fine large men
many over 6 feet and the warriors use a large oval shield of elephant,
crocodile, hippo, giraffe or ox hide and a wide bladed spear. For fishing
they use a long slender spike spear with numerous barbs upon it. The
dance and song was very much like that of the Kikuyus. Many of the men
wore about their loins leopard or serval cat skins, also heavy armlets of
ivory on the biceps. Their hair was cut into various crests for which
purpose it has been stiffened with cowdung. A few had anklets and head
dresses of white hair resembling Colobus and others had long streamers of
horse hair on the heads. A common necklace was a giraffe tail affair
about 1/4 inch in diameter. Arrived at Taufakia at dark and picked up the
(272) mail and then steamed down the river. 10: Reached Kodok at 10 A.M. and went
ashore to the village. The village is made up largely of nubians, arabs,
a few Skilluks and Dinkas. At 5 P.M. we reached the Kaka wood-station
and remained until dark. Went ashore for birds but shot only a few weavers.
Saw a number of Arvicanthus abyssinicus, one of which I shot. Buffalo are
said to be abundant in the vicinity. On the river during the days trip we
saw many hippo, one herd of 5 on some banks had their backs out of water.
About 15 or more crocodiles were seen along the bank at the waters edge.
Most of them were 12 feet or less in length. Birds were very numerous,
many brown pelicans tree-ducks, snake birds, glossy ibis, white egrets,
white bittern, blue and purple herons and fish eagles. Country flat with a
(273) fringe of thorn trees back on (273) the high ground but no thorn tree belts
of much extent. The Nile fringed by a margin of marsh grass with few back
waters and no papyrus anywhere. 11: Heavy head wind all night and day.
Met two boats of newspaper men who made visits of some hours. Reached Renk
at noon. The thorn trees which border the river are large green trees about
the size and color of those along the Athi River. Very few tahl trees seem
to occur here. Ambatch is quite common in the long grass which borders the
river. It is the most wide-spread tree or plant on the Nile. The branching

(273) down palm seems to extend down the Nile only to the Zeraf and so far up as
(275) Gondokoro. 12: Head wind continued all day. Passed a group of small bare granite hills at noon at Jebelein. Saw several crocodiles and a few Hippo during the day. Trees fringed both banks at some distance, chiefly large thorn trees. Ambatch everywhere along the shore. 13: Arrived at El Dueim at daybreak and remained there until 11 A.M. Went ashore and shot birds near the beach. Shot two open-billed storks and several white vultures. Saw many burrows of Gerbils but no lizards. A few thorn trees grew near the town; also some of the catclaw thorn bushes which were so common on the Zeref and at Gondokoro. The Arabs call it Kittir. Below El Dueim a short distance the country changed to sandy deserts with no trees or bushes and
(276) the Nile with sandy instead of grassy banks. (276) Went ashore at 4 P.M. about 20 miles below El Dueim. At this point the river is lined by small sand dunes bare of vegetation. The plains are sandy and covered with a course whitish grass and numerous milk weed bushes like those seen first at the Sobat American Mission. Saw no land birds, reptiles or sign of mammals here in a one hour stroll. The bank of the Nile here has a gentle slope and is lined by short green grass like lawn on which herds of long tailed black sheep, donkeys, horses and cattle were grazing. (277) 14:
(277) Stopped at noon at the Gordontree a short distance above Khartown where we picked up our mail and MacLaughlin the journalist. Arrived at Khartown at the Palace at 4 P.M. and T.R. disembarked and took quarters at the palace. The Blue Nile was very low and we stuck several times in comping up the river from the White Nile. The water was clear and dark, quite a contrast to the muddy water of the White Nile. The country about Khartown is all bare sand with a few milkweed bushes and bunch grass, the town itself is relieved by date palms and ornamental trees of various sorts. Saw Salvi's collection which he made in the Lado and Mongalla provinces. Near Lado Station he got two white Rhino and his Dr. said they saw a dozen each day. At Mongalla
(278) they found a herd of 10 E. African Eland and shot the old bull which was quite bluish with fair horns. I saw the skull but the dried skin was rolled up tightly. He had a series of about 10 male buffalo from near Lado and Mongalla. These were all small like the Colonels head and many were much shorter horned with very little dip to them, coming out quite straight.

(278) 17: T.R. left for Cairo at 10 P.M. 18-24: Spend the time packing collection on the Dal at the Sudan Development and Exploration Co's station, in North Khartown. Set out a few mouse traps in the desert about the thorny kittir bushes. A large single striped Arvicanthus was very abundant in the day and at night many small Dipodillus were taken but no other mammals. At
(279) the electric power (279) house across the river a striped hyaena was taken during our stay and a large civet-cat was reported about the houses there. The desert was dotted with kittir and milkweed bushes but tree growth or grass was lacking along the blue Nile. 24: Left at 9.30 P.M. on the train for Cairo. 25: At daylight we were a little below Berber on a flatish sandy desert dotted everywhere with lines of black boulders projecting a few feet above the sand, like reefs. These reefs were also seen along the Nile which we skirted at times. The desert was in places covered by a scattered growth of thorny bushes and a few small thorn trees. Along the Nile a forest of
(280) down palms extended and on the immediate bank (280) grew a fringe of date palms. No antelope or game was seen. A few crows were seen but no other life. From station No. A. north many rocky hills and mountains were seen scattered about the desert. Arrived at Wadi Halfa at 10 P.M. and went aboard the steamer Britian which left early the next morning. 26: Stopped at 8.30 A.M. at Abu Simbel and visited the temples and photographed and giant figures carved on the buff-colored sandstone bluffs at this place. The Nile here cuts through a sandstone plateau which rises some 200 or 300 feet above it. Between the foot of these bluffs and the Nile a narrow strip of black soil extends which was covered by a heavy crop of wheat.
(281) Passed an old Roman fort on one of the bluffs at noon. (281) 27: Arrived early in the morning at Shellal. Took a boat at 7 A.M. and went to the Assuan Dam. This structure is built of solid granite (red) some 130 feet high and at the top about 50 feet wide. Below the dam is a series of cataracts, &A rocky granite islands through which the river rushes. Afterward we visited the temple on the island Philae which are now partially submerged on account of the dam. The hills about the dam are everywhere naked masses of red granite, many being rounded boulders with no vegetation anywhere except where irrigated. Took the train at 10 A.M. and arrived at Luxor at 5 P.M. Most of the way was through sandy desert skirting the Nile.

(281) At Luxor we drove out to Karvok and viewed the avenue of the sphinxes (Ram and Lion-headed) and the temples and returned at dusk to the Luxor temple.

(282) 28: Arrived at Cairo at 8 A.M. and took rooms in the Bristol Hotel. In the afternoon we went out to the pyramids. The Dr. went through the tunnel into Kferi Pyramid. We also viewed the Sphinx and the granite temple nearby. The tunnel leading into the pyramid is very small, just large enough in places for a thin man to sqeeze through. It is lined with giant blocks of red granite from Assuan. The limestone blocks of which the pyramid is made are quarried at its foot, the pyramids being built upon a limestone reef. On the way back we visited the Zoo Gardens. 29: Went out to the Museum of Egyptian Archeology. The Dr. & J.A.L. left at 5 P.M. on the steamer Brehmen for Naples and U.S.A. 30: Went out to the Zoo Gardens and called on Selomen? but could only get his chief assistant, Mr. Nicole. He took

(283) me about the place for two hours and gav me permission to photograph the Balaeniceps of which they have three. When we entered the large enclosure in which they are kept one of the birds became somewhat freightened and disgorged its breakfast of fish. This the keeper said they always do. Afterward this bird made a sharp slicking sound with its bill but finally I got within 20 feet and took some photos of it and of some of the others also. The keeper showed me a half grown bull buffalo from the Blue Nile which they had raised from a calf. He said another was on the way from Abyssinia. These are the first they have had and no trouble has been found with them. The reason why they are not found in zoos seems to be the difficult in capturing the young. The Addax is represented by a single

(284) buck. This fellow has very wide hoof, an adaptation (284) for sand travel similar to that of a camel. A ♂ Roan from South Africa of a black color throughout is in the gardens; also a young ♀ halfgrown of Baker's Roan. Three lots of greater kudu were seen, one old ♂ and two females, one young adult ♂ and one young one. One young adult Giang is also in the gardens. The gazelles are Loder's, Redfronted, Addra and Dorcas and Sommering's. A large collection of Lemurs and Patos monkeys occur. He told me that they had several species of Cercopithecus in the collection which Pocock's monograph did not give but they were described by others and had been overlooked. He said they had reports of sable from near Mongalla where a herd

of black ones had been seen but no heads had been seen by him and he knew of none. In the afternoon I went out to see Middleton's collection of heads at the arsenal. He had a pair of giant Eland horns, Bahr-el-Ghazal, but these lacked the open spiral of E.R's and were like the B.E.A. heads.

(285) He had a Reedbuck head from the Bahr-el-Ghazal (285) which is very wide spread horns but the hair color is quite buffy like the bohor. He had two fine male heads of Vaughan's Coh, both of which are uniform reddish with no black on the cheeks whatever and thus different from the black-cheeked one we shot. He had never seen any sable from the Sudan but had seen one head from the interior of Somaliland.

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Two new Rodents from British East Africa.

By Edmund Heller

Field Naturalist, Smithsonian African Expedition.

Two Murine rodents collected by members of the Smithsonian African Expedition in British East Africa During June and July 1909 appear to be new to science. This paper, in which they are described, is the second dealing with the results of the Expedition.

THAMNOMYS LORINGI sp. nov.
(Plate ---, a, skull, natural size)

Type No. 161904, U. S. Nat. Mus., ♀ ad. (skin and skull), Lake Naivasha, British East Africa, July 17, 1909; collected by J. Alden Loring; original No. 6684.

General characters: A large Thamnomys agreeing with T. dryas Thomas in dental characters and number of mammae (p o - o, i 2 - 2 = 4); coloration distinctive, the face marked on each side with a broad black band from tip of snout through eye to base of ear.

Color: Upperparts wood brown, washed with black medially, tinged with light tawny on rump and lumbar region; sides paler and grayer but brown color continuing well down to the creamy white of the underparts, the line of demarcation sharply defined; sides of head marked by a broad band of black from the snout through the eye to base of the ear; interorbital region and crown dusky with a slight grizzle; ears scantily covered by ferruginous hairs; whole underparts including cheeks and the fore and hind feet creamy white, the hair basally slate-gray; tail black, clothed scantily with short black hairs which become more numerous posteriorly and form a slight pencil at the tip.

Measurements: head and body, 160; tail, 174; hind foot, 30; ear, 21 dry). Skull: condylobasal length, 36.0; zygomatic breadth, 20.2; interorbital constriction, 4.8; mastoid breadth, 15.6; depth of braincase at middle, 19.6; nasal, 14.0; diastema, 10.8; mandible, 22.4; maxillary toothrow (alveoli), 5.8; mandibular toothrow (alveoli), 5.6.

MUS PEROMYSCUS sp. nov.
(Plate ---, b, skull, natural size)

Type No. 161905, U. S. Nat. Mus., ♂ ad. (skin and skull); Njoro O Nyiro, Sotik, British East Africa; June 9, 1909; collected by E. Heller; original No. 1011.

General characters: Skull long and narrow with slender appressed zygomatic arches and produced rostrum; molar series short and narrow with the internal cusps illy defined; ears large, rounded, scantily clothed by minute hairs; tail essentially naked.

Color: Upperparts sepia changing gradually to walnut-brown posteriorly; sides mixed grayish and fulvous, the transition to the gray of the underparts rather abrupt; sides of head and base of ears lighter brown similar to the coloration of the rump; underparts and feet light grayish with a faint median fulvous wash; tail dusky.

Measurements: Length of head and body, 135; tail, 146; hind foot, 26; ear 22. Skull: condylobasal length 30.4; zygomatic breadth, 16.0; interorbital constriction, 5.0; mastodd breadth, 12.8; depth of braincase at middle, 9.0; nasal, 12.8; diastema, 8.6; mandible, 19.0; maxillary toothrow (crowns), 5.0; mandibular toothrwo (alveoli), 5.0.